U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-257 566

Fiscal Year 1975/Control Technology Research Programs Abstracts

Vitro Labs, Silver Spring, Md

Prepared for

Environmental Protection Agency, Washington, D C Office of Energy, Minerals and Industry

Nov 76

TECHNICAL REPORT DATA

(Please read Instructions on the reverse before completing)

1. REPORT NO.
EPA 600/7-76-025a

2.

3. RECIPIENT'S ACCESSION NO.

4. TITLE AND SUBTITLE

Fiscal Year 1975/Control Technology
Research Program Abstracts

5. REPORT DATE
November, 1976

6. PERFORMING ORGANIZATION CODE

7. AUTHOR(S)

E. Dixon and H. Unite

8. PERFORMING ORGANIZATION REPORT NO.

9. PERFORMING ORGANIZATION NAME AND ADDRESS

Vitro Laboratories
14000 Georgia Avenue
Silver Spring, Md. 20910
(301) 871-2108

10. PROGRAM ELEMENT NO.
EHE 626

11. CONTRACT/GRANT NO.

68-01-0612

12. SPONSORING AGENCY NAME AND ADDRESS

Office of Energy, Minerals, & Industry
Office of Research & Development Washington, DC 20460

13. TYPE OF REPORT AND PERIOD COVERED

14. SPONSORING AGENCY CODE
EPA/600/17

15. SUPPLEMENTARY NOTES
Nina Rowe and Richard Laska of sponsoring agency have provided direction for the preparation of this report.

16. ABSTRACT

This report includes SSIE(Smithsonian Science Information) Abstracts pertaining to the FY 1975 Interagency Energy/Environment Research, Development and Demonstration Program being coordianted and managed by EPA's Office of Energy, Minerals, and Industry. The Abstracts are organized by major energy source control technology. This volume includes research being accomplished by EPA and its laboratories as well as a number of the participating agencies of the Federal Government.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
ABSTRACTS ENERGY ENVIRONMENTS ENVIRONMENTAL ENGINEERING	ENERGY/ENVIRONMENT ENVIRONMENTAL RESEARCH EPA PROGRAMS	06F 08H 10A 13B

18. DISTRIBUTION STATEMENT

Release unlimited

19. SECURITY CLASS (This Report)
Unclassified

20. SECURITY CLASS (This page)
Unclassified

21. NO. OF PAGES
266

22. PRICE
A12 - A01

PB 267 566

EPA

EPA-600/7-76-025a

November 1976

Fiscal Year 1975 Control Technology Research Program Abstracts

Interagency Energy-Environment Research and Development Program Report

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

RESEARCH REPORTING SERIES

Research reports of the Office of Research and Development, U.S. Environmental Protection Agency, have been grouped into seven series. These seven broad categories were established to facilitate further development and application of environmental technology. Elimination of traditional grouping was consciously planned to foster technology transfer and a maximum interface in related fields. The seven series are:

1. Environmental Health Effects Research
2. Environmental Protection Technology
3. Ecological Research
4. Environmental Monitoring
5. Socioeconomic Environmental Studies
6. Scientific and Technical Assessment Reports (STAR)
7. Interagency Energy-Environment Research and Development

This report has been assigned to the INTERAGENCY ENERGY-ENVIRONMENT RESEARCH AND DEVELOPMENT series. Reports in this series result from the effort funded under the 17-agency Federal Energy-Environment Research and Development Program. These studies relate to EPA's mission to protect the public health and welfare from adverse effects of pollutants associated with energy systems. The goal of the Program is to assure the rapid development of domestic energy supplies in an environmentally -- compatible manner by providing the necessary environmental data and control technology. Investigations include analyses of the transport of energy-related pollutants and their health and ecological effects; assessments of, and development of, control technologies for energy systems; and integrated assessments of a wide range of energy-related environmental issues.

This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161.

EPA 600/7-76-025a
November, 1976

FISCAL YEAR 1975
CONTROL TECHNOLOGY
RESEARCH PROGRAMS ABSTRACTS

Interagency
Energy/Environment
Research and Development
Program Report

Project Officer
Richard Laska
Office of Energy, Minerals and Industry
Office of Research and Development
Washington, D.C. 20460

OFFICE OF ENERGY, MINERALS AND INDUSTRY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

1a

DISCLAIMER

This report has been reviewed by the US Environmental Protection Agency, and approved for publication. Approval does not signify that the contents necessarily reflect the views and policy of the Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

FOREWORD

Man and his environment must be protected from the adverse effects of pesticides, radiation, noise, and other forms of pollution, and the unwise management of solid waste. Efforts to protect the environment require a focus that recognizes the interplay between the components of our physical environment -- air, water, and land. The Vitro Laboratories contribute to this multidisciplinary focus through programs engaged in

- studies on the effects of environmental contaminants on the biosphere, and
- a search for ways to control pollutants and/or to mitigate their effects.

This report contains abstracts of energy-environment program tasks which have been designed to carry out the intent of the above stated objectives.

ABSTRACT

The Environmental Protection Agency/Office of Research and Development has prepared this research directory in an effort to better coordinate information dissemination for environmental control technology research. This directory supersedes the "Fiscal Year 1975 Control Technology Research Program Abstracts," published in April 1976. Specific modifications include more comprehensive information as to funding, support method, task, project officer, responsible organization and pertinent dates.

The project level descriptions contained in this volume constitute technical and programmatic information concerning the Environmental Protection Agency/Office of Research and Development's environmental control technology research. Each project has been funded by the FY 1975 Interagency Energy/Environment supplemental appropriation being coordinated by the Office of Energy, Minerals and Industry. In addition, each project has been assigned to one of nine research development and demonstration categories: Energy Resource Extraction, Physical and Chemical Coal Cleaning, Flue Gas Cleaning, Direct Combustion, Synthetic Fuels, Nuclear, Thermal, Improved Efficiency and Advanced Systems.

Project descriptions are culled from "Notice of Research Project" forms. These forms have been prepared under sponsorship of appropriate laboratories and agencies using the Smithsonian Science Information Exchange System (SSIE) format.

Tables have been prepared to reflect the EPA/ORD FY 1975 supplemental energy appropriation budget that is directed toward energy-related control technology activities. Tables 1 through 7 contain the funds budgeted by the Environmental Protection Agency to a single agency: Table 1 represents in-house EPA funding, while Tables 2-7 indicate those agencies receiving EPA pass-through funds. Table 8 is a summary table of all pass-through funds, and Table 9 is a summary of both EPA in-house and pass-through funds.

The tables are arranged by objectives and fuel type (technology). Exhibit A indicates the objectives within the control technology category. The column headed "multi-fuel" includes all research dealing with five or more fuels, while the column headed "all" is a summation of all fuels within each objective. The summation row "6XX" provides totals for each fuel type. With these tables, it is possible to tell at a glance the funds directed to any control technology objective (row), fuel source (column), or agency (table).

Similar information on health and environmental effects of energy development is contained in a second volume covering: Ecological Effects, Transport and Fate, Characterization, Measurement and Monitoring, Health Effects, and Integrated Assessment.

Preceding page blank

TABLE OF CONTENTS

I. ENERGY/ENVIRONMENT RESEARCH FUNDING

Table No.		Page
1	Environmental Protection Agency	viii
2	Energy Research and Development Administration	ix
3	Federal Energy Administration	x
4	Tennessee Valley Authority	xi
5	Department of Agriculture	xii
6	Department of Interior	xiii
7	Appalachian Regional Commission	xiv
8	Total Pass-Through Funds	xv
9	Total FY 1975 Energy Funds	xvi
Exhibit A:	Research Categories	xvii

II. CONTROL TECHNOLOGY RESEARCH

Section		Page
A	Energy Resource Extraction	1-32
B	Physical and Chemical Coal Cleaning	34-52
C	Flue Gas Cleaning	54-144
D	Direct Combustion	146-176

Preceding page blank

TABLE OF CONTENTS
(Continued)

Section		Page
E	Synthetic Fuels	178-200
F	Nuclear	202-210
G	Thermal	213-224
H	Improved Efficiency	227-250
I	Advanced Systems	253-255

TABLE 1

ENVIRONMENTAL PROTECTION AGENCY

[illegible]

[illegible]

[illegible]

[illegible]

TABLE 2

ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 5

[illegible]

[illegible]

[illegible]

EXHIBIT A

[illegible]

[illegible]

[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]

ENERGY RESOURCE EXTRACTION

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (To be used only by EPA)

77-AAA

TITLE OF PROJECT

"Environmental Impact of Steep Slope Mining"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Ben E. Lusk, President
West Virginia Surface Mining and
Reclamation Association

NAME AND ADDRESS OF APPLICANT INSTITUTION

West Virginia Surface Mining and Reclamation Association
1624 Kanawha Boulevard, East
Charleston, West Virginia 25311

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The primary objective of the project is to evaluate the effectiveness of the modified box-cut method of surface mining in reducing the impact on the surrounding environment.

The proposed work will be conducted at a working site on Trace Creek in Mingo Co., West Virginia, and will consist of the following tasks: (1) Determine environmental baseline parameters; (2) Documentation of mining operations (procedures); (3) Monitoring of environmental impacts during mining operations; (4) Acquire historical data on environmental impacts of other steep slope mining activities; (5) Document recovery of mined area; (6) Comparative analyses of various sites to the Trace Creek site; and (7) Preparation of progress and final reports.

The proposed schedule is 24 months.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR Prepared by R. Jackson Hubbard, EPA	DATE 3/6/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (In-house) ☐ NEGOTIATED CONTRACT ☒ RESEARCH GRANT	TASK NO. 1	PROJECT OFFICER R. Jackson Hubbard (513)-684-4417 RESPONSIBLE ORGANIZATION IERL-Cincinnati, Ohio 45268

FUNDS OBLIGATED $70,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. 1	STARTING DATE 5/1/75	ESTIMATED COMPLETION DATE 4/30/77

EPA Form 5760-1 (7-72)   REPLACES PHS FORM [illegible] AND SSIE 26A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE [illegible] SCIENCE INFORMATION EXCHANGE

Form Approved [illegible]	PROJECT NO. [illegible] 77-AAB

TITLE OF PROJECT: "A Cooperative Program to Evaluate Surface and Ground Water Problems Associated with Potential Strip Mine Sites"

NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Theodore T. Williams, Montana State University
Robert D. Koob, North Dakota State University
Paul A. Rechard, University of Wyoming

NAME AND ADDRESS OF APPLICANT INSTITUTION:

Institute of Applied Research
Montana State University
Bozeman, Montana 59715

SUMMARY OF PROPOSED WORK [illegible] (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. [illegible] summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The major objective of this project is to identify possible impacts of coal mining and development in the Northern Great Plains on the surface and ground water systems of the surrounding area. Specific objectives are: (1) obtain an equation of balance for all water inflow and outflow in each of three study sites, one each in Montana, North Dakota, and Wyoming; (2) characterize the overburden from a physical and chemical point of view as well as determine its relationship to the water coming to the surface; (3) characterize the chemical features of the mined sites; and (4) determine hydrologic character of spoils at active mine sites in Montana.

The proposed work is a key effort in the EPA program to assess the surface and ground water problems associated with western coal.

Three sites will be studied. The first phase of this work is the collection of base line data before mining. Some data will be collected at two active mining sites in Montana to provide data for the analysis.

[illegible] PROFESSIONAL SCHOOL INVOLVED [illegible]	SIGNATURE OF PRINCIPAL INVESTIGATOR Prepared by S. J. Hubbard, EPA	DATE 5/6/75

FOR OFFICE USE ONLY

SUPPORT METHOD [illegible] X [illegible]	TASK NO. 1	PROJECT OFFICER S. Jackson Hubbard RESPONSIBLE ORGANIZATION (513) 684-4317 NERC - Cincinnati, Ohio 45268

FUNDS [illegible] $120,541	F.Y. 75	[illegible] FUNDS BEYOND CURRENT F.Y. 0	STARTING DATE June 30, 1975	[illegible] DATE June 29, 1977

EPA [illegible] [illegible] AND [illegible] MAY [illegible]

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. [illegible]

77-AAB

TITLE OF PROJECT
Surface and Subsurface Water Quality Hydrology in Mine Spoils

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

David B. McWhorter, Agricultural Engineering Department

Rodney K. Skogerboe, Chemistry Department

NAME AND ADDRESS OF APPLICANT INSTITUTION
Colorado State University
Fort Collins, Colorado 80521

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this project is to develop a mathematical model capable of predicting the quantity and quality of surface and subsurface runoff on surface mine spoils in the Rocky Mountain Region. This objective will be accomplished by modifying and interfacing existing models of subsurface chemical transport, certain geochemical reactions, overland flow on infiltrating surfaces, and sediment transport. A current study has identified the important physical and chemical characteristics of the spoils which must be included in the model. The adequacy of the model will be thoroughly tested on field plots located on coal mine spoils in Colorado.

The model will be used to analyze and compare alternatives in mining and reclamation management. Among the alternatives to be investigated are the effects of selective placement of toxic spoils, topsoiling, surface manipulation to increase or decrease infiltration, and the effect of revegetation on pollution potential.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) Engineering and Natural Sciences	SIGNATURE OF PRINCIPAL INVESTIGATOR Prepared for Principal Investigation by John Martin, EPA	DATE August 6, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☐ NEGOTIATED CONTRACT ☒ RESEARCH GRANT	TASK NO. 2	PROJECT OFFICER Eugene F. Harris (513)-684-4417 RESPONSIBLE ORGANIZATION EPA Extraction Technology Br., IERL Cincinnati

FUNDS ALLOCATED $150 K	F.Y. 75	[illegible] 0	STARTING DATE July 1, 1975	ESTIMATED COMPLETION DATE June 30, 1976

EPA Form 5700-1 (2-72) REPLACES EPA FORM [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SIE
EPA
77-AAB

TITLE OF PROJECT
"Effects of Surface Configuration in Water Pollution Control on Semi-arid Mined Lands"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Richard L. Hodder, Project leader
I. B. Jensen, Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION

Montana State University
Bozeman, Montana 59715

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

1. Objectives of this study are to demonstrate the effectiveness of several surface configurations in: controlling erosion, runoff, sedimentation and pollution of adjacent drainages; quickly producing a desirable stabilizing vegetative cover; creating an equilibrium between precipitation absorbed and soil moisture evaporated and transpired so that ground water pollution will remain minimal; producing an overall desirable reclamation design providing effective drainage, esthetics productiveness and use.
2. The approach will utilize six demonstration sites in Montana, North Dakota, and Wyoming. Each site will be subjected to several similar treatments and evaluated by use of complete monitoring systems.
3. Current plans require 40 A tracts of new spoils at each of the designated sites to be shaped, surface manipulation treatments applied and seeded to a broad mixture of native and introduced forage species.

Key Words: reclamation, erosion control, sedimentation, water pollution, revegetation, surface manipulation, infiltration, leachate, ground water, runoff, hydrology, watershed

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) College of Agriculture	SIGNATURE OF PRINCIPAL INVESTIGATOR I. B. Jensen	DATE April 17, 1975

FOR OFFICE USE ONLY

TYPE OF SUPPORTING GROUP AGENCY STAFF (Intramural) RESEARCH CONTRACT x RESEARCH GRANT	TASK NO. 3	PROJECT OFFICER Elmore C. Grim 513-684-4417 EPA/NERC/Cincinnati, Ohio 45268

FUNDS OBLIGATED $28,441	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY AGREED TO BEYOND CURRENT F.Y. 1	STARTING DATE 5/12/75	ESTIMATED COMPLETION DATE 5/11/76

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. [illegible]
SSIE
EPA
77-AAB

TITLE OF PROJECT: Potential Hazards to Ground-Water and Surface-Water Quality and Quantity From Projected Energy Development on the Northern Cheyenne Reservation, Montana

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Robert Bailey, Director
Northern Cheyenne Research Project

NAME AND ADDRESS OF APPLICANT INSTITUTION
Northern Cheyenne Tribal Council
Lame Deer, Montana 59043

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Northern Cheyenne Tribe, via the Northern Cheyenne Research Project, desires to develop an in-depth knowledge of the chemical and physical character of reservation water resources, and the interrelation of water to other resources, so that the tribe can make informed choices in planning coal development. A three-year study plan is proposed to: (1) gather and interpret baseline data concerning the water resources and the interrelationships of these data to land, biocommunity, supply needs, and energy resources of the reservation; (2) ascertain potential adverse chemical, physical, and economic impacts to reservation water resources from coal development; and (3) develop a comprehensive water resources management plan that will aid present and future planning for resource exploitation. Standard field and laboratory methodology will be employed in assessing the geology, surface water, and ground water of reservation lands. Professional help will be hired to direct field studies and assist in final report preparation.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED [illegible]	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
	Robert Bailey	4/2/75

FOR OFFICE USE ONLY

SUPPORT METHOD [illegible]	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
[illegible]	4	[illegible] IERL-Cincinnati, Ohio /EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS OF SUPPORT ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$300 K	75	3	6/1/75	5/30/78

EPA Form [illegible]

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77-AAB

TITLE OF PROJECT
Evaluation of the Environmental Impacts of Western Surface Coal Mining

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

L. Daniel Maxim, Vice President, Mathtech Division
Frank Cook, Consultant, Mathtech Division
Burton Becker, Vice President, Hittman Associates, Inc.
Thomas Mills, Project Director, Hittman Associates, Inc.

NAME AND ADDRESS OF APPLICANT INSTITUTION

Mathematica, Inc. P.O. Box 2392, Princeton, New Jersey 08540

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

1. Objectives

a.) Assessment of the environmental damages that result from surface coal mining in the Western U.S.

b.) Identification of new production and reclamation technologies whose use would reduce the magnitudes of those environmental damages.

2. Approach

Production and reclamation data will be gathered from literature surveys, interviews of interested parties, and field surveys of nine surface coal mines. The data will be synthesized and analyzed using mathematical models where appropriate.

3. Progress

Project just initiated.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 6/23/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 5	PROJECT OFFICER P.B. Lederman RESPONSIBLE ORGANIZATION EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200 K	75		6/75	9/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 166A WHICH MAY NOT BE USED.

NOTICE OF RESEARCH PROJECT	SSIE No. [illegible] PROJECT NO. (Do not use this space) SSIE EPA 77 AAB
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	

TITLE OF PROJECT "An Evaluation of the Environmental Impact of the Existing Surface Mining Methods for Western Coal Mines"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Mr. Frank W. Daniels

NAME AND ADDRESS OF APPLICANT INSTITUTION

Mathematica, Inc.; P.O. Box 2392; Princeton, NJ 08540

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project is specifically designed to evaluate the surface mining methods presently employed in the mining of the western coals in arid and semi-arid regions and to evaluate the effect these methods have on the environment.

The purpose of this contract is to prepare for the Mining Pollution Control Branch a document which details the environmental damage which results from the mining methods currently being utilized. In addition, recommendations will be made on how these mining methods might be alerted to reduce both short - and long-term damage.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (medical, dental, etc.) NA	SIGNATURE OF PRINCIPAL INVESTIGATOR Prepared by John F. Martin EPA	DATE 8/7/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ACTIVITY STAFF (Intramural) X. [illegible] CONTRACT [illegible]	TASK NO. 6	PROJECT OFFICER E. Jackson Hubbard (513)-684-4417 RESPONSIBLE ORGANIZATION Extraction Technology Br., IERL - Cinti.

ROAP [illegible]	F.Y.	[illegible]	STARTING DATE	COMPLETION/REVIEW DATE
5171 1	75	0	6/30/75	9/29/76

EPA Form 5760-1 (7-72) PREVIOUS EDITIONS [illegible] MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
[illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. [illegible]

SIE

EPA 77-AAC

TITLE OF PROJECT: Field and Laboratory Methods Applicable to Overburdens and Minesoils

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Richard Merivether Smith, Professor of Agronomy,
Division of Plant Sciences, West Virginia University

NAME AND ADDRESS OF APPLICANT INSTITUTION

College of Agriculture and Forestry
West Virginia University
Morgantown, West Virginia 26506

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

It is proposed to write a manual of step-by-step procedures by which mine operators, laboratory analysts, consultants, and State and Federal agencies and land owners can determine properties of overburdens and minesoils needed to assure soil and water quality.

The procedures will include field identification of common rocks and minerals; field sampling techniques; packing, transport, and processing of rock and soil samples; chemical, mineralogical and physical analyses; and interpretation of analytical results into field recommendations. These recommendations will be designed to aid preplanning of the total surface mining operation including post-mining reclamation and long-range land use, insofar as these are influenced by the character of the rock and soil overlying the coal seam. The manual will support the concept of controlled segregation and placement of overburden during surface mining to assure soil and water quality.

Terms used in the manual will be defined and will be an important part of this project. Such standardization would greatly benefit communication between the multiple disciplines involved.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED [illegible] College of Agriculture and Forestry	SIGNATURE OF PRINCIPAL INVESTIGATOR Elmore C Grim Prepared by Elmore C. Grim, EPA	DATE 12/16/74 12/16/74

FOR OFFICE USE ONLY

SUPPORT METHOD [illegible] [illegible] [illegible] ✗ [illegible]	TASK NO. 1	PROJECT OFFICER Elmore C. Grim RESPONSIBLE ORGANIZATION (513)-684-4417 [illegible], Cincinnati, Ohio 45268

FUNDS OBLIGATED	F.Y.	ADDITIONAL FUNDS TENTATIVELY RECOMMENDED FOR SUBSEQUENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$30,000	75	0	9/15/75	9/14/76

EPA Form 5760-1 (2-73) REPLACES [illegible] FORM [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY NOTICE OF RESEARCH PROJECT	Form Approved OMB No. [illegible]
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	PROJECT NO. (Do not use this space) SSIE EPA 77-AAC

TITLE OF PROJECT

New Mining Technology to Minimize Environmental Disturbance

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Ben E. Lusk -- Project Manager

William L. Piper -- Project Engineer

NAME AND ADDRESS OF APPLICANT INSTITUTION

West Virginia Surface Mining and Reclamation Association
1624 Kanawha Boulevard, East, Charleston, West Virginia 25311

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The new surface mining method called "longwall stripping" is a technique that could have applications in the State of West Virginia and other mining areas of the country. This mining method employs underground mining technology, called longwall mining, in areas that are often surface strip mined or auger mined. By utilizing a continuously advancing 250 ft. "face" that runs perpendicular to the coal outcrop the coal can be removed without leaving the coal "ribs" left by augers and without overturning the entire earth surface as when strip mined. This is particularly advantageous in very steep slope mining conditions. Additionally, while not a part of this demonstration project, it is possible that this mining could be accomplished without men at the "face" if technology similar to that available in Europe is further developed for U. S. conditions.

In demonstrating this new technology, "longwall stripping", the Association would expect to prove that surface coal mining can effectively and efficiently be balanced with a "clean environment."

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) Engineering	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE April 11, 197

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☐ NEGOTIATED CONTRACT ☒ RESEARCH GRANT	TASK NO. 5	PROJECT OFFICER S. Jackson Hubbard RESPONSIBLE ORGANIZATION EPA IERL-Cincinnati, Ohio 45268 (513)684-41

FUNDS OBLIGATED $635,000	F.Y. 76	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y. 2	STARTING DATE 7/23/73	ESTIMATED COMPLETION DATE 7/22/76

EPA Form 1740-1 (2-75) REPLACES PHS FORM 188 AND [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAG/05

TITLE OF PROJECT "Manual of Practice to Control Sediment and Erosion During Mining"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Environmental and Geosciences Division - Burton Becker, Vice President; Thomas Mills, Program Manager; Michael Clar, Project Engineer; Pete Hartman, Task Leader; Robert Kautzman, Task Leader.

NAME AND ADDRESS OF APPLICANT INSTITUTION
Hittman Associates, Inc.
9190 Red Branch Road
Columbia, Maryland 21045

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The primary objective of the proposed study is to develop a comprehensive, practical manual of practice for controlling sediment from surface mining operations in the eastern portion of the United States. The manual will summarize the state-of-the-art of sediment control and provide functional guidelines for planning, implementing, monitoring and maintaining effective control practices and procedures for various types of surface mining operations and different mining activities throughout the geographical area of interest. This effort will be accomplished in the following steps: assemble written information, conduct inspections and interviews, analyze and evaluate information, identify state-of-the-art control technology and industry needs, develop control strategy, finalize plan and prepare manual of practice.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR Burton C. Becker

DATE 6/10/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
NEGOTIATED CONTRACT
APPLICATION GRANT

TASK NO. 05

PROJECT OFFICER Elmore C. Grim

RESPONSIBLE ORGANIZATION Mining Branch - Cincinnati

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSIGNED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
128,100	75	0	6-10-75	5-10-75

EPA Form 5700-1 (9-73) REPLACES PHS FORM 166 AND SSIE 9EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

PROJECT NO. [illegible]

EPA
77-AAC

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Manual of Practice for Premining Planning Eastern Surface Coal Mining

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

R. V. Ramani	L. W. Saperstein
Associate Professor of Mining Engineering	Associate Professor of Mining Engineering
Department of Mineral Engineering	Department of Mineral Engineering

(See also attached sheet)

NAME AND ADDRESS OF APPLICANT INSTITUTION

The Pennsylvania State University
University Park, PA 16802

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200-300 words). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The manual of practice will set out the rationale in pre-mining site evaluation so that mining and reclamation will be done in a manner so as to not only comply with existing and proposed state and federal mining programs but ensure minimal environmental damages. The site evaluation will include the evaluation of the soil and rock properties, surface and ground water resources, physical and cultural features, and methods of mining and reclamation. It will consider the geological and hydrological setting prior to mining as the basic inputs to the pre-mining planning. The manual of practice will provide guidelines and means of assessing alternatives in the areas of water management, land use planning, and surface mine engineering, and will be mostly based on information gained from literature review and critical evaluation of methods as reported in the literature and applied in the field. The M.O.P. shall recommend methods, techniques and alternatives for selecting and designing mining systems to achieve soil handling and storage, and overburden handling, segregation and disposal. It will be presented in an orderly and concise manner. Liberal use of charts, maps, graphs, diagrams and photographs will be made to substantiate the description.

The Manual of Practice (M.O.P.) will be designed to assist mine operators and control personnel in developing, evaluating and selecting mining and reclamation plans that will be least detrimental to the environment, prior to the commencement of mining.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
College of Earth & Mineral Sciences		

FOR OFFICE USE ONLY

X [illegible]

6

PROJECT OFFICER
Elmore C. Grim
RESP. OFFICE ORGANIZATION EPA
MERC-Cincinnati, Ohio 45268 (513) [illegible]

FUNDS OBLIGATED	F.Y.	[illegible]	STARTING DATE	COMPLETION DATE
$150 K	75	1	July 1, 1975	June 30, 197

EPA Form [illegible]

77-AAD

"Water Quality Hydrology Affected by Oil Shale Development"

Dr. David B. McWhorter, Assistant Professor
Department of Agricultural Engineering

Colorado State University
Fort Collins, CO 80523

The development of oil shale deposits, as a viable energy source, has the potential for significantly influencing the water quality hydrology of both the Upper and Lower Colorado River Basins. The specific objectives of the proposed project are:

1. To gather all available data pertinent to the present future assessment of the water quality hydrology in the oil shale regions of the Upper Basin.
2. To summarize these data toward the identification of deficiencies.
3. To develop and verify procedures for quantitative assessment of water quality.

Agricultural Engineering	Prepared by John Martin, EPA	8/8/75

FOR OFFICE USE ONLY

	1	Eugene F. Harris (513)-684-4417 EPA Pollution Technology Branch, IERL Cincinnati

$100 K	75	1	6/15/75	6/14/77

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO.

77-AAD

TITLE OF PROJECT "Vegetative Stabilizationof Paraho Spent Oil Shale"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

William A. Berg
Associate Professor of Agronomy (Soils)
Agronomy Department

NAME AND ADDRESS OF APPLICANT INSTITUTION

Colorado State University
Fort Collins, Colorado 80521

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The study will attempt to duplicate on a very small scale what might be disposal schemes for the Paraho spent shale. It will investigate surface stability and salt movement in spent Paraho oil shale after a cover of vegetation has been established. Measurements of vegetation including frequency, density and ground cover will be made. Spent shale will be compacted to an optium density for pile stability and to minimize percolation through the pile. A cover of soil or uncompacted spent shale will be placed over the compacted piles.

College of Agriculture	SIGNATURE OF PRINCIPAL INVESTIGATOR Prepared by John F. Martin, EPA	DATE 8/8/75

FOR OFFICE USE ONLY

X	TASK NO. 2	PROJECT OFFICER Eugene F. Harris (513) 684-4417 EPA Extraction Technology Branch, IERL-Cincinn

094 X	75	0	7/15/75	7/16/75

NOTICE OF RESEARCH PROJECT

FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77-AAD

TITLE OF PROJECT

Vegetation Stabilization of Spent Oil Shales

NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED ON THE PROJECT

William A. Berg
Associate Professor of Agronomy (Soils)
Agronomy Department

NAME AND ADDRESS OF APPLICANT INSTITUTION

Colorado State University
Fort Collins, Colorado 80521

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). To the Smithsonian Science Information Exchange. Summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objective. To investigate surface stability and salt movement in spent oil shales and soil-covered spent shales after a cover of native vegetation has been established by intensive treatments and then left under natural precipitation conditions.

Approach. The study is being carried out on two different spent oil shales. "Soil" treatments are plant establishment on 1. directly on leached and fertilized spent shales; 2. six inches of soil over leached spent shale; 3. one foot of soil over unleached spent shale; 4. soil. Plots have been established on 25 percent north and south slopes at altitudes of 5700 and 7200 feet in or near the Piceance Basin and Northwestern Colorado. Each plot (28 per site) is bordered with wood to form individual runoff plots 11 feet wide and 22 feet long. Sediment and runoff catchments have yet to be installed. One site (5700') has been instrumented for soil salinity and soil moisture measurements.

A cover of native plant species has been established on the lower altitude sites and will be established on the higher site. Measurements on vegetation include frequency, density and vegetative ground cover.

Agricultural Sciences	SIGNATURE OF PRINCIPAL INVESTIGATOR William A. Berg	DATE 8/8/75

FOR OFFICE USE ONLY

015 R	75	2
PROJECT OFFICER	Eugene F. Harris (513)-684-4417	EPA
	Extraction Technology Branch, IERL Cincinnati	
	8/21/75	8/30/76

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E756-EE

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Plant materials studies to improve technologies for the reclamation of surface mined lands

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Coordinate plant materials studies being accelerated at nine SCS plant materials centers. All work is coordinated by the agencies' plant materials specialists at technical service centers. These are: W. Curtis Sharp, SCS, 1974 Sproul Road, Broomall, Pennsylvania 19008, (215) 353-1480; Ashley A. Thornburg, SCS, Federal Bldg., Lincoln, Nebraska 68508, (403) 471-5349; (see attached sheet)

NAME AND ADDRESS OF APPLICANT INSTITUTION

U.S. Department of Agriculture
14th & Independence Avenue, S.W.
Washington, D.C. 20250

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

1. To assemble, analyze, summarize and prepare a report on plant materials activitas relative to the reclamation of surface mined lands which will contribute to a jointly prepared USDA technical handbook on revegetation surface mined lands and spoils in the Eastern Coal Mining Region.

2. To accelerate plant materials work with special emphasis in the Western Mining Region (arid and semi-arid) to:

   a. Determine plants best suited for mine spoil reclamation under wide range of site conditions.

   b. Develop techniques for the successful establishment and survival of plants for erosion control and mine land reclamation.

   c. Determine the modification of equipment for seed collection and processing and for planting disturbed lands.

   d. Propagate and provide for the commercial increase and dissemination of seed and other plant materials for mine spoil reclamation.

3. Jointly, with the Forest Service, Cooperative State Research Service, Economic Research Service, and Agricultural Research Service, develop a USDA technical handbook including above items 2a, b, c, and d.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., Dental, etc.)
NA

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
7/30/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☒ AGENCY STAFF (Intramural)
☐ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1-3

PROJECT OFFICER
Robert S. MacLauchlan

RESPONSIBLE ORGANIZATION
Plant Sciences Division
USDA-Soil Conservation Service

FUNDS OBLIGATED
$200

F.Y.
1975

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.
Four, contingent on additional funding

STARTING DATE
July 1, 1975

ESTIMATED COMPLETION DATE
June 30, 1980

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SI-SIE 16A WHICH MAY NOT BE USED.

Cont'd

Arnold G. Davis, SCS, P.O. Box 6567, Fort Worth, Texas 76115, (817) 334-5400; and S. H. Fuchs, SCS, Federal Bldg., 511 N.W. Broadway, Portland, Oregon 97209, (503) 221-2041.

FORM APPROVED
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

SSIE
EPA 77-AAE

TITLE OF PROJECT
Evaluation of Reverse Osmosis Processes Utilized for Treatment of Acid Mine Drainage

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
G. Lansing Blackshaw, Dept. of Chemical Engineering, Professor & Principal Investigator
Alfred W. Pappano, Dept. of Chemical Engineering, Assistant Professor and Co-Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION
West Virginia University
Morgantown, West Virginia 26506

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. To the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The object of the research is to provide a definitive state-of-the-art report concerning the technical and economic feasibility of utilising reverse osmosis (RO) based techniques in the treatment of both ferrous and ferric acid mine drainage originating in coal mining operations.

Information will be gathered from the work of previous investigators, treatment plant operating experiences, industrial producers of RO and other acid mine drainage treatment equipment, and RO process synthesis research to be conducted by the WVU investigators at the EPA Crown Mine Drainage Control Field Site (Crown, WV). Studies to be performed at Crown consist of lime, soda ash, and lime-soda ash neutrolosis utilising a 60,000 gallon per day RO unit. Also included will be investigations of two stage RO processing using both 60,000 and 4,000 gallon per day RO units, coupled ion exchange-RO processes, and lime-soda softening of acid mine drainage as a pretreatment step to RO processing. All data from these studies will be factored into the report as required to present a complete accounting of RO process potential for AMD treatment.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) College of Engineering	SIGNATURE OF PRINCIPAL INVESTIGATOR G. Lansing Blackshaw	DATE 12/31/74

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) NEGOTIATED CONTRACT X RESEARCH GRANT	TASK NO. 5	PROJECT OFFICER Robert B. Scott 304/296-3496 RESPONSIBLE ORGANIZATION NERC-Cincinnati, IWTRL / EPA

FUNDS OBLIGATED $176,965	F.Y. 75	NO. OF FUTURE YEARS' ACTIVITY ASSUMED BEYOND CURRENT F.Y. 1	STARTING DATE 6/30/75	ESTIMATED COMPLETION DATE 12/31/76

EPA Form [illegible] REPLACES PHS FORM 166 AND SI SIE 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SSIE

EPA

77-AAF

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Study of Pollution Control Technology for Offshore Oil Drilling and Production Platforms

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Principal Investigator: Dr. Steven M. Fruh
Group Head, Environmental Systems
Exxon Research and Engineering Company

NAME AND ADDRESS OF APPLICANT INSTITUTION

Exxon Research and Engineering Company
P. O. Box 8
Linden, New Jersey 07036

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project will determine how to minimize water polluting discharges from offshore oil drilling and production platforms by the most practicable use of current technology of wastefluid management and pollution control equipment. The Contractor shall define,design features of unit processes, equipment and hardware - including pertinent aspects of human factors engineering - and operation and maintenance procedures which should be practiced or avoided from the standpoint of minimization of pollutants in operational discharges. These definitions shall be accomplished by means of a field survey involving sampling, analysis, waste characterization and observation of operation and maintenance procedures. The results of the analyses and observations will be compiled to provide a pollution minimization rationale that can be used for future platform unit process design as well as for upgrading the performance of existing equipment.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.): Gulf Universities Research Consortium

SIGNATURE OF PRINCIPAL INVESTIGATOR: Dr. Steven M. Fruh

DATE: August 12, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO. 2

PROJECT OFFICER: Frank J. Freestone

RESPONSIBLE ORGANIZATION EPA
Oil & Hazardous Materials Spills Sub-Program

FUNDS OBLIGATED: $970,000

F.Y.: 76

NO. OF FUTURE YEARS TENTATIVELY PROGRAMMED BEYOND CURRENT F.Y.:

STARTING DATE: 7-1-75

ESTIMATED COMPLETION DATE: 9-30-77

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SIE 10A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0091

PROJECT NO. (Do not use this space)
SSIE
EPA
77-AAG

TITLE OF PROJECT
Compilation of Cold-Climate Oil-Spill Research and Technology Pertaining to Alaskan Shorelines

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Principal Investigator: Dr. J. D. McKendrick
Assistant Professor
Institute of Agricultural Sciences

NAME AND ADDRESS OF APPLICANT INSTITUTION
Institute of Agricultural Sciences
University of Alaska
Palmer, Alaska

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This grant will assess the adequacy of available methods and techniques for preventing damage from oil spills to coastal and inland shorelines, including dry riverbeds, and for restoring oil spill damaged areas to as near original condition as possible. These methods will be documented in the form of a prevention, cleanup and restoration manual for areas of likely spills. Gaps in available control technology will be identified and objectives and priorities for needed R&D will be determined.

Assembling the pertinent data will involve several collection techniques. Additionally, a literature search will be performed to establish the current state-of-the-art. Visits will be made to sites where oil spills, both intentional and accidental, have occurred. All pertinent information concerning the protection and restoration techniques attempted at these sites will be obtained. The field of investigation will include both Alaskan and Canadian territories.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
Institute of Agricultural Sciences	Dr. Jay D. McKendrick	5/28/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☐ NEGOTIATED CONTRACT
☒ RESEARCH GRANT

TASK NO.
1

PROJECT OFFICER
John S. Farlow

RESPONSIBLE ORGANIZATION EPA
Oil Spill Technology Branch, IERL

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$115,000	75	0	7/1/75	6/30/76

EPA Form 5700-1 (7-73) REPLACES PHS FORM 166 AND SSIE 1 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	Form Approved OMB No. [illegible] PROJECT NO. (Do not use this space) SSIE **77-ACP**

TITLE OF PROJECT "Establishment of Criteria to Locate and Define Sources and Quantities of Water that will Ultimately Enter a Mine"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Mr. John Regan

NAME AND ADDRESS OF APPLICANT INSTITUTION

E. D'Appolonia Consulting Engineers, Inc.
10 Duff Rd.; Pittsburgh, PA 15235

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project is to establish criteria to locate sources and define the quantities of water that will enter underground coal mines through faults, fractures, etc. A manual will be prepared explaining the procedures for the use of applicable methods for the underground coal mines of the eastern United States. The criteria obtained will enable mining companies to plan water diversions and dewatering procedures that will reduce or eliminate polluted mine water discharges. State and Federal regulatory agencies will be able to use the criteria in reviewing mining applications for potential infiltration problems and as an aid in requiring procedures requiring water diversion or dewatering to prevent discharges of pollutants.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) NA	SIGNATURE OF PRINCIPAL INVESTIGATOR Prepared by John F. Martin, EPA	DATE 8/7/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) INTRAMURAL STAFF (full-time) X EXTRAMURAL CONTRACT EXTRAMURAL GRANT	TASK NO. 1	PROJECT OFFICER B. Jackson Hubbard (513)-684-4417 RESPONSIBLE ORGANIZATION EPA Extraction Technology Branch, IERL - Cinti.

FUNDS [illegible] 7250 k	F.Y. 75	NO. OF PROFESSIONAL MAN-YEARS [illegible] F.Y. 0	STARTING DATE 6/30/75	ESTIMATED COMPLETION DATE 9/30/76

EPA Form 5760-1 (5-73) REPLACES EPA FORM (ES) AND SSIE 26A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE

77-ACP

TITLE OF PROJECT Evaluation of the Long-term Environmental Effectiveness of close-down Procedures-Eastern Underground Mines

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. R. V. Stinglin

NAME AND ADDRESS OF APPLICANT INSTITUTION

HRB Singer, Inc.; P.O. Box 60; State College, PA 16801

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project will provide information concerning the mine sealing techniques currently in use in the Eastern U.S. The work will consider drainage from the mines, mine methods involved, length of closure, and the characteristics of the seam mined. A survey of approximately 50 underground mines is anticipated.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
NA	Prepared by John Martin, EPA	8/7/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT ☐ RESEARCH GRANT	3	Robert B. Scott (304)-296-3496 RESPONSIBLE ORGANIZATION EPA Extraction Technology Br., IERL-Cincinnati

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$144 K	75	0	6/10/75	7/10/76

EPA Form 5700-1 (7-73) REPLACES PHS FORM 166 AND [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMEN PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0051

PROJECT NO. (Do not use this space)
SSIE
EPA 77-ACF

TITLE OF PROJECT

Evaluation of the Long Term Environmental Effectiveness of Close Down Procedures - Eastern Underground Coal Mines.

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Ronald W. Stingelin, Principal Geologist, Department of Environmental and Social Analysis (Principal Investigator)

NAME AND ADDRESS OF APPLICANT INSTITUTION

HRB-Singer, Inc., P.O. Box 60 Science Park, State College, Pa. 16801

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this study is to provide an overview of the long-term environmental effectiveness of eastern underground coal mine close-down procedures. Following a thorough review of existing literature, a site selection will be made of approximately 65 underground mines in the eastern United States. Existing data will be collected on the past and present history of these sites. A field sampling program of mine drainage quality and quantity will then be used to ascertain the effectiveness of various past and present mine closure methods. The factors to which effectiveness or ineffectiveness of closure methods are attributable will be arrived at through an extensive multivariate statistical analysis. Recommendations of areas of research needed to develop more advanced mine closure technology or alternative solutions to mine closure will be made.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR Ronald W. Stingelin	DATE 6/26/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 3	PROJECT OFFICER P.E. Lederman RESPONSIBLE ORGANIZATION EPA

FUNDS OBLIGATED $200 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE 6/75	ESTIMATED COMPLETION DATE 6/77

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SSIE 152 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E681-AP

TITLE OF PROJECT
ENVIRONMENTAL CONTROL TECHNOLOGY SURVEY ON SELECTED U.S. STRIP MINING SITES

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Ralph P. Carter - Director, Coal Extraction and Reclamation Programs, EES
Donald O. Johnson - Coal Geologist, Energy and Environmental Systems Division
Allen O. Perry - Geological Engineer - Energy and Environmental Systems Division
Jeffrey P. Schubert - Groundwater Geologist - Enegy and Environmental Systems Divisio

NAME AND ADDRESS OF APPLICANT INSTITUTION
Argonne National Laboratory, Energy and Environmental Systems Division
9700 South Cass Avenue
Argonne, Illinois 60439

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objective: - A report on the alternative technologies showing promise for the control of effluents and wastes from strip mining operations in the Eastern United States through the next 20 years. This report will include the survey of existing and likely future sites for such activities, the projection of the activities, the technology involved, the volumes and characteristics of the wastes and effluents, and the potential environmental impacts of these volumes. Based on statistical correlation between sites, environmental control practices, and the effectiveness of those practices, alternative technologies for type sites will be delineated.

Approach - 1. Identify types of sites, including individual site surveys and grouping by key parameters, in central and eastern coal provinces (east of 100 degree W). 2. Prepare projections for the next 20 years of: a) mining areas, b) extraction and processing practices, c) volumes and characteristics of effluents and wastes, and d) potential environmental impacts. 3. Identify generic environmental control problems. 4. Catalog environmental control practices by site type, including description of the practices and delineation of their effectiveness. 5. Prepare a statistical and descriptive correlation between the sites, the ECT practices, and the effectiveness of those practices. 6. Identify alternative environmental control technologies by both environmental and economic incentives for the several type sites.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)
--------------------------------

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
September 9, 197

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1&2

PROJECT OFFICER

RESPONSIBLE ORGANIZATION
Argonne National Laboratory ERDA

FUNDS OBLIGATED
300 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.

STARTING DATE

ESTIMATED COMPLETION DATE
7/76

EPA Form 5780-1 (7-72)   REPLACES EHS FORM 166 AND SSIE 1EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0051

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E756-EE

TITLE OF PROJECT
Plant materials studies to improve technologies for the reclamtion of surface mined land

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Coordinated plant materials studies being accelerated at nine SCS plant materials centers. All work is coordinated by the agencies' plant materials specialists at technical service centers. These are: W. Curtis Sharp, SCS, 1974 Sproul Road, Broomall, Pennsylvania 19008, (215) 353-1480; Ashley A. Thornburg SCS, Federal Bldg., Lincoln, Nebraska 68508, (402) 471-5349; (see attached sheet)

NAME AND ADDRESS OF APPLICANT INSTITUTION
U.S. Department of Agriculture
14th & Independence Avenun, S.W.
Washingto , D.C. 20250

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

1. To assemble, analyze, summarize and prepare a report on plant materials activities relative to the reclamation of surface mined lands which will contribute to a jointly prepared USDA technical handbook on revegetating surface mined lands and spoils in the Eastern Coal Mining Region.

2. To accelerate plant materials work with special emphasis in the Western Mining Region (arid and semi-arid) to:

   a. Determine plants best suited for mine spoil reclamation under wide range of site conditions.

   b. Develop techniques for the successful establishment and survival of plants for erosion control and mine land reclamation.

   c. Determine the modification of equipment for seed collection and processing and for planting disturbed lands.

   d. Propagate and provide for the commercial increase and dissemination of seed and other plant materials for mine spoil reclamation.

3. Jointly, with the Forest Service, Cooperative State Research Service, Economic Research Service, and Agricultural Research Service, develop a USDA technical handbook including above items 2a, b, c, and d.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)
NA

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
7/30/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
X AGENCY STAFF (Intramural)
NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
1+2

PROJECT OFFICER
Robert S. MacLauchlan

RESPONSIBLE ORGANIZATION Plant Sciences Division
USDA-Soil Conservation Service

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200K	1975	Four, contingent on additional funding	July 1, 1975	June 30, 1980

EPA Form 5760-1 (7-72) REPLACES PHS FORM 186 AND SI-SIE 76A WHICH MAY NOT BE USED.

Cont'd

Arnold G. Davis, SCS, P.O. Box 6567, Fort Worth, Texas 76115, (817) 334-5408; and S. H. Fuchs, SCS, Federal Bldg., 511 N.W. Broadway, Portland, Oregon 97209, (503) 221-2041.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0051

PROJECT NO. (Do not use this space)

SSIE

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

IAG-D5-E764-EF

TITLE OF PROJECT Technologies for controlling adverse effects of mining on forest, range, and related freshwater ecosystems.

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Coordinated studies by Forest Service research scientists underway at several locations in the Northern Great Plains and Southwest U.S.A. being conducted by: Director, Rocky Mountain Forest and Range Experiment Station, 240 West Prospect Street, Fort Collins Colorado 80521; Director, Intermountain Forest and Range Experiment Station, 507 25th Street, Ogden, Utah 84401; Dir., Forest Environ. Research Staff, 12th & Independence Ave SE, Washington, D. C. 20250

NAME AND ADDRESS OF APPLICANT INSTITUTION

U.S. Department of Agriculture
12th and Independence Avenue, S.W.
Washington, D.C. 20250

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

1. Develop guidelines and criteria for overburden drilling, analysis, and placement as related to growth supporting media.

2. Prepare technical handbook on revegetation methods for mined lands in Eastern U.S., including recommendations for new research.

3. Develop guidelines and criteria for the use of non-mine wastes as soil amendments on coal and oil shale spoils.

4. Develop recommendations, guidelines, and criteria, based on new research, for revegetation following coal and oil shale mining.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER W. F. Callahan
X	AGENCY STAFF (Intramural)	1-4	RESPONSIBLE ORGANIZATION Forest Environment Research, Forest Service, USDA
	NEGOTIATED CONTRACT		
	RESEARCH GRANT		

FUNDS OBLIGATED $680 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 6/76	ESTIMATED COMPLETION DATE 6/80

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
(OMB No. 158-R0081)

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E763-EH

TITLE OF PROJECT
Revegetation and reclamation of land areas disturbed by mining

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTOR, AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

List attached.

NAME AND ADDRESS OF APPLICANT INSTITUTION
Agricultural Research Service
U.S. Department of Agriculture
Washington, D.C.

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

1. Develop methods for utilization of waste material in revegetation and reclamation of strip mine lands. Approach - Emphasis will be given to the effect of various waste materials on water quality, reclamation efficiency, and plant growth and quality.

2. To develop methods for control of instability on mined lands. Approach - Studies will be conducted to develop regrading, amendment incorporation, and revegetation practices to alleviate the instability.

3. To develop methods for stabilizing and restoring areas disturbed through oil shale and coal mining. Approach - Research will include studies on grade stabilizers, small dams, and detention basins to provide water for irrigating selected areas for more intensive forage production.

4. To develop methods for restoring and maintaining a favorable soil organic matter component in reclaimed strip mine areas. Approach - Determine the physical and chemical conditions required and methods for restoring desirable microbial activity. Special emphasis will be placed on Rhizobium species and the growth and nitrogen fixation ability of legumes.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (if not medical)
NA

SIGNATURE OF PRINCIPAL INVESTIGATOR
H L Barrows

DATE
Aug. 6, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
X AGENCY STAFF (In-house)
NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
1, 2, 3, 4

PROJECT OFFICER
H. L. Barrows

RESPONSIBLE ORGANIZATION
Agricultural Research Service, USDA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$595 K	1975	4	June 1975	December 1979

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

Dr. O. L. Bennett
Agronomy Department
West Virginia University
Morgantown, West Virginia 26506
Phone: 304-293-2793

Dr. J. F. Power
Northern Great Plains Research Center, ARS, USDA
P. O. Box 459
Mandan, North Dakota 58554
Phone: 701-663-6448

Mr. W. H. Armiger
Biological Waste Management Laboratory, ARS, USDA
Agricultural Research Center
Beltsville, Maryland 20705
Phone: 301-344-3184

Mr. J. N. Jones
Agronomy Department
Virginia Polytechnic Institute
Blacksburg, Virginia 24061
Phone: 703-951-6812

Dr. D. A. Woolhiser
Engineering Research Center
CSU Foothills Campus
Fort Collins, Colorado 80523
Phone: 303-491-8511

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E681-EJ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

TRACE ELEMENT CHARACTERIZATION AND REMOVAL/RECOVERY FROM RAW COAL AND COAL PROCESSING WASTES

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

LASL PROJECT DIRECTOR: R. D. Baker, CMB Division Leader

PRINCIPAL INVESTIGATOR: E. M. Wewerka, Staff Member

NAME AND ADDRESS OF APPLICANT INSTITUTION

LOS ALAMOS SCIENTIFIC LABORATORY
UNIVERSITY OF CALIFORNIA, LOS ALAMOS, NM 87545

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The program objectives are to characterize the chemistry of trace elements in coal and coal cleaning wastes and to conduct laboratory scale evaluations of new physical/chemical processes for removal and recovery of trace elements which are potentially detrimental to the environment. Characterization studies include the composition and mineralogy of inorganic phases and the chemistry of trace elements bonded to the coal structure itself. Laboratory process evaluation studies will apply what has been learned about the chemistry of trace elements to new processes, add-on processes or modifications of existing processes for coal cleaning to optimize removal/recovery of selected trace elements.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
	E.M. Wewerka	1/27/76

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☒ AGENCY STAFF (Intramural)	1-4	Frank K. Pittman
☐ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
☐ RESEARCH GRANT		ERLA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$300 K	75		5/75	5/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 105 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
IAG D5-E762-EP thru E8

TITLE OF PROJECT
Technology for Reclamation and Use of Mine Spoils

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

See Attached List

NAME AND ADDRESS OF APPLICANT INSTITUTION
Cooperative State Research Service
US Department of Agriculture, Washington, D. C.

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

1. To develop systems of classification of minespoils and to develop plans for post-mining redeposition, stabilization, and revegetation with trees in Eastern region.

2. To work out systems of deposition of overburden strata concurrently with mining including use of topsoil and soil amendments at the surface.

3. To improve diagnostic tests for potential acidity in coal spoils and to devise reclamation methods and use of horticultural crops on reclaimed areas.

4. To work out soil and water management including temporary irrigation for revegetation of mined lands in arid and semi-arid regions

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
See Attached Sheet	R. V. Miller	Aug 15, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☐ NEGOTIATED CONTRACT
X RESEARCH GRANT

TASK NO.: 1, 2, 3, 4

PROJECT OFFICER: S. Aldrich, W. Thomas, D. Little, L. Wilson

RESPONSIBLE ORGANIZATION: USDA/ CSRS

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$495,000	1975	4	June 1975	December 1979

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SI-SIE 166A WHICH MAY NOT BE USED.

(Attachment 1.)

Names, Departments, and Official Titles of Principal Investigators or Project Directors and All Other Professional Personnel Engaged in The Project

Studies will be coordinated regionally by Project Directors:

Northeast Region (Pa, W. Va.)	W. I. Thomas, Associate Director Pennsylvania Agricultural Exp. Sta.
North Central Region (O.)	S. R. Aldrich, Assistant Director Illinois Agricultural Exp. Sta.
Southern Region (Va., Ky)	C. O. Little, Associate Director Kentucky, Agricultural Exp. Sta.
Western Region (Ariz. N.M., Utah)	H. L. Wilson, Associate Director New Mexico Agricultural Exp. Sta.

Identify Professional School Involved (Medical, Dental, etc.)

Penn State University
University of West Virginia
Ohio State University
Virginia Polytechnic Institute
University of Kentucky
University of Arizona
N. M. State University
Utah State University

PHYSICAL AND CHEMICAL COAL CLEANING

Preceding page blank

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77 AAK

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Environmental Assessment of Coal Cleaning Processes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected June 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less; omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

U. S. energy policy requires the accelerated development and implementation of environmentally sound technologies for the use of coal as an energy source. Physical and chemical coal cleaning are used to reduce the non-combustible mineral content of coal and to remove elements which result in dangerous air pollutants when burned. These coal cleaning processes and associated storage and transportation operations in turn result in the concentration of pollutants and wastes which must be controlled to avoid adverse environmental effects.

This purpose of this effort is to collect data to characterize the pollutant emissions, residue disposal problems and pollutant control technology for various coal transportation, coal storage and coal cleaning processes. This effort will cover a wide range of activities which will include: technology overview studies, development of detailed process descriptions, development of environmental assessment criteria and evaluation plans, development of detailed process oriented test plans, performance and evaluation of environmental tests, generation of environmental impact studies, and performance trade-off studies on alternative pollution control methods. Adequate performance of this study will require in-depth experience in environmental test and analysis, engineering analysis and economic analysis.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1

PROJECT OFFICER
James D. Kilgroe

RESPONSIBLE ORGANIZATION
IERL-RTP/ EPA

FUNDS OBLIGATED
795 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.

STARTING DATE
May 76 (est.)

ESTIMATED COMPLETION DATE
6/77

EPA Form 5760-1 (7-73) REPLACES PHS FORM 100 AND SI-SIE 764 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0001

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAK

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Evaluation of the Battelle HCP Coal Desulfurization Process

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

E. Stambough - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION
Battelle Columbus Laboratory
505 King Avenue
Columbus, Ohio

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Battelle Hydrothermal Coal Process is a process for producing environmentally acceptable coals from high-sulfur coals. The objective of this program is to provide an environmental evaluation of the Battelle process for removal of pollutant-forming constituents.

Battelle will achieve the objective of this research program by

- Conducting combustion studies on hydrothermally treated coals and the corresponding raw coals
- Characterizing hydrothermally treated coals and the raw coals and selected spent leachants
- Evaluating the environmental impact of converting conventional boilers to hydrothermally treated coals as the source of fuel
- Assessing the interchangeability of hydrothermally treated coals in utility and industrial boilers
- Evaluating the potential of producing terephthalic acid from solubilized coal.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)
N.A.

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
4

PROJECT OFFICER
L. Lorenzi, Jr.

RESPONSIBLE ORGANIZATION
IERL-RTP, EACD, FPB /EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$80,000	75	1	27 June 1975	June 1976

EPA Form 5760-1 (7-73)   REPLACES PHS FORM 100 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PRO. KEY NO. (Do not use this space)
SSIE
EPA
77AAL-

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Coal Cleaning Technology Development

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress. (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

U. S. energy policy requires the accelerated development and implementation of environmentally sound technologies which use coal as an energy source. Physical coal cleaning can be used to reduce the non-combustible mineral matter in coal and remove elements which form dangerous pollutants when burned. The purpose of this effort is to develop information needed to accelerate physical coal cleaning as a cost-effective method for pollution control.

Work to be performed under this effort will include: (1) the development through surveys and tests of cost and performance data on the capability of commercial equipment in removing pyritic sulfur from fine particle coal; (2) determine the performance of commercial equipment in dewatering fine coal from sulfur cleaning circuits; (3) evaluate needs for the development of air and water pollution control technology which result from fine coal separation and dewatering operations; and (4) perform process design studies to determine the costs of using coal cleaning to meet state and federal air pollution control standards.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1A

PROJECT OFFICER
James D. Kilgroe

RESPONSIBLE ORGANIZATION
EPA/Cinicinnati, Corvallis

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
330 K	75		Feb. 76 (Est.)	12/76

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAL

TITLE OF PROJECT
Process Design Manual for Coal Preparation Plants

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

D. Nunenkamp - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION

J.J. Davis Associates
7900 Westpark Drive, Suite 915
McLean, Virginia

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This contract will provide in concise form the best of existing technology in physical coal cleaning operations to users of coal cleaning equipment. The manual will detail potential environmental problems and solutions for use by federal, state and local agencies. Specific processes utilized for physical cleaning operations will be discussed and illustrated through the use of data from existing installations. Current technology and advanced methods of cleaning will be stressed in order to provide usable information for implementation in design of new cleaning facilities.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., Dental, etc.)
N.A.

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
18

PROJECT OFFICER
M.J. Stutsman

RESPONSIBLE ORGANIZATION
IERL-RTP, EACD, FPB/EPA

FUNDS OBLIGATED
100 K

F.Y.
75

NO. OF FUTURE YEARS (TENTATIVELY) ASSUMED BEYOND CURRENT F.Y.
1

STARTING DATE
28 June 1974

ESTIMATED COMPLETION DATE
28 June 1975

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAL

TITLE OF PROJECT
Comparison of Fossil- and Wood-Derived Fuels

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

E.H. Hall - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION

Battelle Columbus Laboratories
505 King Avenue
Columbus, Ohio

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objectives of the study were as follows:

- To evaluate wood as a fuel for a 50 MW power plant in Central Vermont as compared with alternative fuels, which included: low-sulfur coal, physically cleaned coal, high-sulfur coal burned with stack gas scrubbing, and low-sulfur fuel oil.
- To make a cursory study of the applicability of the concept to other areas of the country and to other sized power plants.
- To survey the Milton plant and assess the modifications required to satisfactorily receive and fire wood fuel, and to estimate the costs for all wood-handling, boiler-firing, and pollution-control modifications.
- To make a preliminary evaluation of the probable impact of burning wood at the Milton plant on the air quality in this vicinity; and, to estimate the usefulness of increasing the height of the stack.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ AGENCY STAFF (Intramural)	10	PROJECT OFFICER: J. Kilgroe
☒ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION: IERL-RTP, EACD, FPB / EPA
☐ RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$75,000	75	1	3 July 1975	Oct. 1975

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0081*
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 11AAL

TITLE OF PROJECT

Bench-Scale Study of the Meyers Process for Coal Desulfurization

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected May 75

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Meyers Process for coal desulfurization is one method for chemically removing pollutant-forming constituents from coal prior to combustion. The Meyers Process was initially supported by EPA for a study of its chemical feasibility. The success of this initial project led to follow up studies for bench-scale process development and then to a survey of the applicability of the Meyers Process technology to a variety of U.S. coals. Design of a pilot plant was initiated under contract. An independent economic evaluation of the Meyers Process technology has also been performed. Results of these studies have shown that the process is technically and economically viable. These studies have also indicated (1) that integrated pilot plant development of the technology is required and (2) that additional bench scale study is required to add to the fundamental knowledge and understanding of the desulfurization process system.

The purpose of this project is to provide additional experimental development work on the Meyers Process at a bench-scale level. This additional work will examine identified process problem areas (both technical and economic) in order to identify alternative procedures and will provide additional characterizing process data needed for engineering evaluations of process performance and acceptability.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D. or dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 5	PROJECT OFFICER Lloyd Lorenzi, Jr. RESPONSIBLE ORGANIZATION IERL-RTP / EPA

FUNDS OBLIGATED $250 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 5/75	ESTIMATED COMPLETION DATE 3/77

EPA Form 5700-1 (7-72) REPLACES THE FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAL

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Characterization of Coal and Coal Residue

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
W.J. Rhodes, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION
INTERIM

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A new contract will look at potential pollutants that are organically combined in the coal and quantification between organic and inorganic portions will be made.

Options would (1) conduct bench scale tests to determine the physical and chemical nature of these constituents as they are in the coal, (2) relate char production to its pollutants, (3) conduct column leaching tests on coal residues.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER W.J. Rhodes
	AGENCY STAFF (Intramural)	6	RESPONSIBLE ORGANIZATION IERL-RTP, EACD, FPB /EPA
X	NEGOTIATED CONTRACT		
	RESEARCH GRANT		

FUNDS OBLIGATED $200 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE 12/75	ESTIMATED COMPLETION DATE 6/77

EPA Form 5700-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 189A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAL

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT Construction, Operation and Evaluation of a Pilot Plant for the Chemical Removal of Pyritic Sulfur from Coal

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

NAME AND ADDRESS OF APPLICANT INSTITUTION

TRW, Inc., TRW Systems Group
1 Space Park
Redondo Beach, California 90278

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

EPA is actively supporting development work on a chemical extraction technique for the removal of pyritic sulfur from coal by use of the Meyers Process. This development has progressed to the stage of scale-up to pilot plant size. Pilot plant construction and operation is required and will be provided from this effort. The principal outputs from this study will be definitions of the integrated, operational feasibility of the process. All data necessary for technology advancement to demonstration/commercial scale will be generated.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR Mr. Robert Myers	DATE

FOR OFFICE USE ONLY

	SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER Lloyd Lorenzi
	AGENCY STAFF (Intramural)	7	RESPONSIBLE ORGANIZATION EPA
X	NEGOTIATED CONTRACT		
	RESEARCH GRANT		

FUNDS OBLIGATED $850,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE 6/17/75	ESTIMATED COMPLETION DATE 11/17/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND 5-515 78A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA 77 AAL

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Development Program for Treatment of Coal to Produce Low-Sulfur, Solid Fossil Fuel

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT
D.K. Fleming Project Manager, Assistant Director, Process Evaluation
R.D. Smith
M.R.Y. Aquino

NAME AND ADDRESS OF APPLICANT INSTITUTION
Institute of Gas Technology
3424 South State St.
Chicago, Illinois 60616

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this program is to determine on a bench and pilot unit-scale the operating parameters for the IGT Process to desulfurize coal by thermal and chemical means.

Coal will be treated with a reducing atmosphere in the presence of a sulfur getter. Sulfur removal will be determined as a function of temperature, residence time, coal/getter ratio, coal composition, and particle size.

In work to date under earlier contracts, Midwestern coal with 3.5-4 per cent sulfur content has been converted into solid fossil fuel that can be burned directly in conformance with Federal EPA New Source Performance Standards for sulfur emission.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 11/25/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT SOLICITED GRANT	TASK NO. 7	PROJECT OFFICER Lloyd Lorenzi RESPONSIBLE ORGANIZATION EPA/RTP

FUNDS OBLIGATED 1500 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 11/7/75	ESTIMATED COMPLETION DATE 7/6/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAL

TITLE OF PROJECT
Technical Support for Chemical Desulfurization and Synthetic Fuel Programs

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Marvin Lopes - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION

Catalytic, Inc.
P.O. Box 11402
Charlotte, North Carolina 28209

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The object of this task is to develop the conceptual design of a flexible Pilot Test Unit for the environmental and process testing of a system (or systems) for producing liquids, solids and gases from coal, using solvent extraction, pyrolysis and hydro liquefaction processes.

The product of this task will be a technical report presenting a discussion of available or developing coal liquefaction processes, conceptual design of a Pilot Test Unit for all processes which are best suited for a laboratory scale test facility and a final conceptual design of an "optimal" Pilot Test Unit for the installation and operation at EPA's Laboratory, Research Triangle Park, North Carolina. A cost estimate for the installation and operation will be provided.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ EPA STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 7	PROJECT OFFICER L. Lorenzi, Jr. RESPONSIBLE ORGANIZATION IERL-RTP, EACD, FPB / EPA

FUNDS OBLIGATED $45,600	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE 1 July 1975	ESTIMATED COMPLETION DATE 31 Dec. 1975

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAL

TITLE OF PROJECT Dev. of a Comprehensive Sampling & Analytical Strategy for Refining Waste Streams & Eval. of NO$_x$ & Hydrocarbon Emissions, Control Tech. & Ambient Impact

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

NAME AND ADDRESS OF APPLICANT INSTITUTION

Radian Corporation
P. O. Box 9948
Austin, Texas 78766

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will employ an extensive literature search and detailed engineering analyses to obtain an estimate of the concentration of all identifiable compounds in the waste streams from within a typical petroleum refinery. The project will then seek to determine the feasibility of a generalized sampling and analytical strategy and the probable cost for applying this strategy to the waste streams addressed in this effort.

The project will also supply updated information concerning transport/transformation of oxidants and NO$_x$.

Based on this information, a program will be developed for estimating relative contribution of source emissions on air quality, to include dry deposition and additional source categories (e.g., transportation and natural). This program and revised data will provide quantitative estimates of the relative contribution of specific category emissions on air quality in at least two cities (e.g., Boston, Chicago, St. Louis, or Los Angeles) to be designated. This program will also predict the impact of existing and planned ambient air quality reduction resulting from current regulations on present and future sources.

Within the limits of the data developed during the project, the study will include an analysis which compares the relative impact of emissions of NO$_x$ and hydrocarbons from identified source categories.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
	Dr. D. Carlton	

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO. 8

PROJECT OFFICER
I. A. Jefcoat

RESPONSIBLE ORGANIZATION
IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$99,360	75		6/30/75	8/30/75

EPA Form 5760-1 (7-75)   REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

[illegible]

PROJECT NO. (Do not use this space)

SSIE

EPA

77AAL-90B

TITLE OF PROJECT

The Utility of Solid Sorbents for Sampling Organic Emissions from Stationary Sources

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. William Hedley

NAME AND ADDRESS OF APPLICANT INSTITUTION

Monsanto Research Corporation
Dayton Laboratory
1515 Nicholas Road
Dayton, Ohio 45407

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will investigate the utility of solid sorbents in field sampling of organic emissions from stationary sources and quantitate the limitations of the various polymer packing materials with respect to temperature, composition, oxidizing nature, etc. of these effluent streams.

Initial laboratory studies shall be followed by field work on organic sources. Some means, such as cryogenic trapping, shall be provided to demonstrate trapping efficiencies for different species. Field comparisons shall also be made, whenever feasible, to wet impinger or other conventional trains.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
77AAL-90B

PROJECT OFFICER
L. D. Johnson

RESPONSIBLE ORGANIZATION
IERL-RTP, IPD, PMB

FUNDS OBLIGATED	F.Y.	NO. OF ADDITIONAL YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	DATE PROJECT COMPLETED
$45,704	75	Unknown	5/1/75	10/30/75

EPA Form 5760-1 (7-72) REPLACES PHS FORM [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0051

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SSIE

EPA 77AAL-908

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Technical Services in Air Pollution Sample Acquisition and Analysis

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. William H. Hedley

NAME AND ADDRESS OF APPLICANT INSTITUTION

Monsanto Research Corporation
Dayton Laboratory
1515 Nicholas Road
Dayton, Ohio 45407

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The IERL-RTP is responsible for research, development and demonstration of air pollution control technology for stationary sources of pollution. During the conduct of studies to carryout this function, non-routine situations arise which require the utilization of measurement expertise and/or facilities not available within the Laboratory.

The project will evaluate sampling procedures and sampling equipment required for the acquisition of representative samples from solid, liquid, gaseous and/or multiphase streams associated with industrial processes and/or air pollution control systems. Where specialized equipment is required, the effort shall develop specifications, fabricate the equipment, and perform laboratory and field evaluations.

The project will also evaluate analytical procedures including sample handling, storage and preparation. Physical and chemical analyses will be performed on selected samples using wet chemical or instrumental techniques such as atomic absorption; neutron activation; X-ray fluroescence; X-ray diffraction; spark source mass spectrometry; gas chromatography; infrared, ultraviolet and visible spectroscopy; liquid chromatography; optical emission spectroscopy; electron microscopy; optical, electrical or aerodynamic particle size.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ AGENCY STAFF (Inhouse) ☒ NEGOTIATED CONTRACT ☐ GRANT	77AAL-908	Larry Johnson IERL-RTP, IPD, PMB

FUNDS OBLIGATED	F.Y.	NO. OF FISCAL YEARS TENTATIVELY ASSIGNED IN FUND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
51,644	75	Unknown	3 May 1974	3 May 1977

EPA Form 5780-1 (7-72)   REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAL-90C

TITLE OF PROJECT
Guidelines for IERL/RTP Quality Assurance Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Forest Mixon

NAME AND ADDRESS OF APPLICANT INSTITUTION
Research Triangle Institute
Post Office Box 12194
Research Triangle Park, N.C. 27709

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less; omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The implementation of control system research and development studies covering a wide range of technologies requires a quality assurance program capable of incorporating techniques that are cost effective.

The project will provide a guideline document to assist IERL/RTP project officers in providing for adequate quality assurance measures on projects. The following issues will be discussed in the report:

1. Statements for inclusion in RFP's
2. Criteria for evaluating QA in proposals and work plans
3. Application of QA during project implementation
4. Manpower and cost estimation for QA programs

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (If any)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ RESEARCH CONTRACT ☐ RESEARCH GRANT	TASK NO. 77AAL-90C	PROJECT OFFICER L.D. Johnson RESPONSIBLE ORGANIZATION IERL-RTP, IPD, PMB

FUNDS OBLIGATED	F.Y.	EST. OF FUTURE YEAR FUNDS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$20, 466	75	Unknown	6/27/75	12/30/75

EPA Form 5760-1 (7-72) REPLACES EPA FORM [illegible] WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAL-10
77AAH-01

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Environmental Assessment of Coal Cleaning Processes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected June 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

U. S. energy policy requires the accelerated development and implementation of environmentally sound technologies for the use of coal as an energy source. Physical and chemical coal cleaning are used to reduce the non-combustible mineral content of coal and to remove elements which result in dangerous air pollutants when burned. These coal cleaning processes and associated storage and transportation operations in turn result in the concentration of pollutants and wastes which must be controlled to avoid adverse environmental effects.

This purpose of this effort is to collect data to characterize the pollutant emissions, residue disposal problems and pollutant control technology for various coal transportation, coal storage and coal cleaning processes. This effort will cover a wide range of activities which will include: technology overview studies, development of detailed process descriptions, development of environmental assessment criteria and evaluation plans, development of detailed process oriented test plans, performance and evaluation of environmental tests, generation of environmental impact studies, and performance trade-off studies on alternative pollution control methods. Adequate performance of this study will require in-depth experience in environmental test and analysis, engineering analysis and economic analysis.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X [illegible] RESEARCH GRANT	TASK NO. 77AAL-10 77AAH-01	PROJECT OFFICER James D. Kilgroe RESPONSIBLE ORGANIZATION IERL-RTP

FUNDS OBLIGATED N/A	F.Y. 76	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE May 76 (est.)	ESTIMATED COMPLETION DATE

EPA Form 1800-1 (7-72)   REPLACES PHS FORM AND SSIE WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0061 PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA EPA-IAG-D5-E685-AJ

TITLE OF PROJECT

Physical/Chemical Coal Cleaning Technology Development

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Albert W. Deurbrouck, Acting Chief, Coal Preparation and Analysis Group
Area Code/Phone: 412-892-2400 Ext. 261

NAME AND ADDRESS OF APPLICANT INSTITUTION

Coal Preparation and Analysis Group, U. S. Bureau of Mines
4800 Forbes Avenue, Pittsburgh, Pennsylvania 15213

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Conduct research on the development of practical physical and chemical coal cleaning technology for the removal of sulfur and ash. The following areas will be studied:

1. Sulfur and ash release potential of U. S. coals when crushed and float-sink tested.
2. Development of a physical coal cleaning computer model for performance analysis, optimal design and operation, and economic evaluation of the coal washing operation.
3. Testing and assessment of the first commercial two-stage froth-flotation process for removal of pyritic sulfur from fine size coal.
4. Research to improve or develop techniques and approaches to mechanical dewatering of the fine size desulfurized coal.
5. Laboratory or bench scale evaluation of new or novel concepts for physical or chemical coal cleaning such as the hot aqueous caustic process for sulfur and ash removal.
6. Evaluate the performance characteristics of coal washing equipment
7. Miscellaneous studies in support of the above.

Major Milestones:

1. Publish update of report on coal cleanability studies.
1a. Publish preliminary report on cleanability of Northern Appalachian region coals.
1b. Publish final report on cleanability studies for Northern Appalachian region.
2. Publish interim report on the physical coal cleaning computer model.
3a. Complete construction of the commercial two-stage froth flotation process.
3b. Publish report on the test program for the two-stage froth flotation process.
4. Publish interim report on adsorption-desorption reactions in two-stage froth flotation.
5. Complete preliminary bench scale evaluation of hot aqueous caustic process.
6. Publish interim report on status of in-house coal cleaning projects.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
NA	P. Stanley Jacobsen for Albert W. Deurbrouck	08-12-75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
X INTRAMURAL STAFF PERSONNEL EXECUTED CONTRACT EXECUTED GRANT	1	Albert W. Deurbrouck RESPONSIBLE ORGANIZATION Coal Preparation and Analysis Group U. S. Bureau of Mines

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
200 K	1976	5	FY 1962	FY 1981

EPA Form 5780-1 (7-72) REPLACES PHS FORM 86 AND SSIE 163 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0051

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E685-AK

TITLE OF PROJECT
Coal Cleaning Waste Disposal and Reuse

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
Albert W. Deurbrouck, Acting Chief, Coal Preparation and Analysis Group
Area Code/Phone: 412-892-2400 Ext. 261

NAME AND ADDRESS OF APPLICANT INSTITUTION
Coal Preparation and Analysis Group, U. S. Bureau of Mines
4800 Forbes Avenue, Pittsburgh, Pennsylvania 15213

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Develop a laboratory process and demonstrate the process in a pilot plant to eliminate coal refuse ponds and the associated environmental problems by processing the waste to recover coal and other marketable materials and then dewatering and agglomerating the remaining waste into a coarse refuse or a construction type material.

Major Milestones:

1. Sample larger washery impoundments to determine quantity of coal and characteristics of the waste.
2. Conduct bench scale laboratory tests to determine optimum flowsheet for recovering coal as a salable product.
3. Assemble a pilot plant based on bench scale tests and demonstrate technical feasibility of recovering coal.
4. Publish results of demonstration (pilot plant) tests on sampled washery impoundment wastes.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED IN U.S.E. [illegible]
NA

SIGNATURE OF PRINCIPAL INVESTIGATOR
P Stanley [illegible]
for Albert W. Deurbrouck

DATE
08-12-75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
X PROJECT STAFF (Inhouse)
X [illegible]
[illegible]

TASK NO.
1

PROJECT OFFICER
Albert W. Deurbrouck

RESPONSIBLE ORGANIZATION
Coal Preparation and Analysis Group
U. S. Bureau of Mines

FUNDS OBLIGATED
200 K

F.Y.
1976

NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.
1

STARTING DATE
July 1975

ESTIMATED COMPLETION DATE
January 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 1EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAC-D5-E685-AL

TITLE OF PROJECT
Coal Washing Test Facility

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
Albert W. Deurbrouck, Acting Chief, Coal Preparation and Analysis Group
Area Code/Phone: 412-892-2400 Ext. 261

NAME AND ADDRESS OF APPLICANT INSTITUTION
Coal Preparation and Analysis Group, U. S. Bureau of Mines
4800 Forbes Avenue, Pittsburgh, Pennsylvania 15213

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Design and construct a coal washing test facility in Pittsburgh which can be used to test new techniques and equipment for removal of sulfur and ash from coal and for preparation of the desulfurized coal for transportation with minimum dust losses. The test facility would also be used to produce ton lots of specification coal for EPA projects in combustion testing, flue gas scrubbing, fluidized bed combustion and synthetic fuel process raw and acid gas cleanup.

Major Milestones:

1. Complete plant design.
2. Complete construction.
3. Publish report on first year operations.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) NA	SIGNATURE OF PRINCIPAL INVESTIGATOR for Albert W. Deurbrouck	DATE 08-12-75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
X AGENCY STAFF FUNCTION
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
1

PROJECT OFFICER
Albert W. Deurbrouck

RESPONSIBLE ORGANIZATION
Coal Preparation and Analysis Group
U. S. Bureau of Mines

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$500 K	1976	2	March 1, 1975	January 1979

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SIE 166A WHICH MAY NOT BE USED.

FLUE GAS CLEANING

Preceding page blank

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)

SSIE

EPA 77AAB

TITLE OF PROJECT Environmental Assessment and Systems Analysis of Stationary Combustion Source Pollutant Control Techniques (NO_x)

NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Feb. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This effort will provide for environmental assessments and systems analyses of low NO_x control technologies for stationary combustion sources. The study, planned as a three-year 77,300 manhour level-of-effort contract, will emphasize analytical process engineering and field testing activities to evaluate the impact of the control technologies on the environmental air, water and land quality and on the operation of the energy conversion systems to which they will be applied. The contractor will also be required to develop background information on the various NO_x control technologies and strategies, and to recommend further development and application of the control technologies as required to meet control objectives.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)

☐ AGENCY STAFF (Intramural)

☒ NEGOTIATED CONTRACT

☐ RESEARCH GRANT

TASK NO. 1

PROJECT OFFICER Joshua S. Bowen

RESPONSIBLE ORGANIZATION IERL-RTP/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY PLANNED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$129 K Base $350 K Energy	75		Jan. 76 (Est.)	6/80

EPA Form 5760-1 (7-72) REPLACES SIE FORM 102 AND SSIE 102A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAR

TITLE OF PROJECT Field Testing - Application of Improved Combustion Technology to Power Generation Combustion Systems

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Dec. 75

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The IERL-RTP requires information relating the effect of combustion modification techniques on utility power-generating equipment (boilers, stationary engines, gas turbines) to air pollution emissions, equipment performance, and efficiency. Emissions to be measured include NO, NO_2, SO_2, SO_3, CO, CO_2, O_2, gaseous hydrocarbons, particulate (mass and size distribution), and toxic and hazardous pollutants. Fuels to be used in this study include natural gas, oil, coal, waste fuel, and combinations of these. Equipment performance evaluation will include long-term tube wall corrosion rate measurements determining the relation of slagging to firebox conditions, and determining how boiler reliability is affected. As a result of the program two guideline manuals shall be prepared, in addition to a final report. One guideline will be directed toward manufacturers to indicate which designs produce the lowest emission and best efficiency, and the second will be prepared for operators to indicate how conventional equipment operation can be modified to reduce emissions and improve efficiency.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO. 3

PROJECT OFFICER Robert E. Hall

RESPONSIBLE ORGANIZATION IERL-RTP/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$450 K	75		Nov. 75 (Est.)	

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77 AAR

TITLE OF PROJECT Field Testing - Application of Improved Combustion Techniques to Industrial Combustion Equipment

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Jan. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The IERL-RTP requires information relating the effect of combustion modification techniques and operating variables on industrial combustion equipment (kilns, ovens, dryers, process furnaces, boilers, stationary engines, and gas turbines) to air pollutant emissions, efficiency, and equipment performance. Fuels to be used in this study include natural gas, distillate oil, residual oil, coal, waste fuel, and combinations of these. Emissions to be measured will include NO, NO_2, SO_2, SO_3, CO, CO_2, O_2, gaseous hydrocarbons, smoke, particulate (mass and size distribution) and toxic elements. A survey will be conducted on equipment, location of equipment for testing, field tests will be performed and reports prepared. The study will determine the effectiveness of techniques such as staged combustion; varying excess air, load, and air preheat; and water injection, which have been applied to boilers in past studies. The test matrix will include equipment with variations in design, rating, fuel type, and combustor design and location. As a result of the program a final report and guideline manuals will be prepared. The guideline manuals will be prepared for each equipment type and will include design and operation information specifically for equipment manufacturers and operators.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, Etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 4-2	PROJECT OFFICER Robert E. Hall RESPONSIBLE ORGANIZATION IERL-RTP/EPA

FUNDS OBLIGATED $100 K Base $500 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE Dec. 75 (Est.)	ESTIMATED COMPLETION DATE 6/80

EPA Form 1760-1 (7-72) REPLACES THE FORM 106 AND SI-SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAS

TITLE OF PROJECT
Staged Combustion Technology for Coal Fired Utility Boilers

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Ambrose P. Selker, Project Manager

NAME AND ADDRESS OF APPLICANT INSTITUTION
Combustion Engineering, Inc.
1000 Prospect Hill Road
Windsor, CT 06095

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

(1) Objective - to investigate the effectiveness and acceptability of employing overfire air as a method for reducing NO_x emission from tangentially coal fired steam generators.

(2) Approach -

(a) Design, fabricate and install a system to provide for introduction of a portion of the combustion air supply above the normal admission points in the furnace of a tangentially coal fired steam generator.

(b) Perform baseline tests before installation of system described in (a) and evaluate reduction in NO_x emission under various conditions of overfire air admission after installation of system. The effects on emission of other pollutants and furnace operation (slagging, flame stability, or corrosion potential) will be evaluated.

(c) Based on the data analysis, estimates will be made on the degree of emissions control attainable and the general applicability and costs of these techniques as applied to existing or new units.

(3) Current plans and/or progress -
Work initiated on item (2) (a) on July 9, 1973.
Scheduled completion by 10/75.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 1-1	PROJECT OFFICER David G. Lachapelle RESPONSIBLE ORGANIZATION EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$10,000	75	Contract Near Completion	6/30/73	10/75

EPA Form 5700-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0081*
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77AAB

TITLE OF PROJECT

Analysis of NO_x Control in Stationary Sources

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Mr. Owen W. Dykema
Manager, Combustion Effects

NAME AND ADDRESS OF APPLICANT INSTITUTION

The Aerospace Corp.
2350 East El Segundo Blvd.
El Segundo, Calif. 90245

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Under ongoing programs NO_x emissions from gas-fired boilers at full load have been reduced by as much as 81 percent, or as little as 37 percent depending on size, configuration, and operating characteristics of the unit. Reduction for oil and coal-fired boilers range from 60 to 30 percent, and 60 to 20 percent, respectively. Although these reductions are significant, they do not necessarily represent the maximum, practical attainable values. In application of combustion modification techniques where NO_x reductions were achieved, the degree of reduction has been limited by the excessive emission of CO or smoke, or the occurrence of combustion instability or flame lift-off. By relieving these problems by several proposed methods further reduction in NO_x could be achieved.

This research grant includes three sub-tasks involved in the general investigation of practical methods to reduce NO_x emissions in tuility boilers; namely, (1) combustion and flame stability, (2) effects of combustion modification on plant efficiency, and (3) effect of combustion modifications on tangential oil-fired boilers, and two sub-tasks in the continuing compilation and up-date of the emissions inventory; namely, (1)utility and industrial boiler data up-date, and (2)addition of other major point source categories.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.V.M., etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☐ NEGOTIATED CONTRACT ☒ RESEARCH GRANT	TASK NO. 2	PROJECT OFFICER Robert E. Hall RESPONSIBLE ORGANIZATION IERL-RTP/ EPA

FUNDS OBLIGATED $92,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. One (1)	STARTING DATE 07/15/75	ESTIMATED COMPLETION DATE 07/14/76

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SSIE 366 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAS

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Design, Component Purchase and Fabrication of an Experimental Multi-Burner Furnace

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

L.W. Anderson, Program Manager
R.A. Brown, Project Engineer
F.E. Moreno, Project Engineer

NAME AND ADDRESS OF APPLICANT INSTITUTION

Aerotherm Division, Acurex Corporation
485 Clyde Avenue
Mountain View, CA, 94042

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Previous EPA contracts with Aerotherm have provided for the construction of a basic multi-burner combustion chamber, burners, flue gas cooling system and flame safeguard system. This project will complete the detailed system design and purchase/fabricate all components of the system to permit installation and operation of the integrated facility.

IDENTIFY PROFESSIONAL FIELD(S) INVOLVED (IF ANY)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
2-9

PROJECT OFFICER
David G. Lachapelle

RESPONSIBLE ORGANIZATION
IERL-RTP, EACD, CRB / EPA

FUNDS OBLIGATED
$50,700

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY PLANNED BEYOND CURRENT F.Y.
Contract Completed

STARTING DATE
12/11/74

ESTIMATED COMPLETION DATE
8/79

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AA8

TITLE OF PROJECT

Pilot Scale Evaluation of Advanced Combustion Control Tech. for Fossil & Waste Fuels

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

L.W. Anderson - Program Manager - Environmental Engineering Systems
R.A. Brown - Principal Investigator - Energy/Environmental Sciences Dept.
H.B. Mason - Project Engineer - Energy/Environmental Sciences Dept.
J.O.L. Wendt - Consultant - University of Arizona
D. W. Pershing - Consultant - University of Arizona

NAME AND ADDRESS OF APPLICANT INSTITUTION

Aerotherm Div/Acurex Corp.
485 Clyde Avenue
Mtn. View, Calif. 94042

SUMMARY OF PROPOSED WORK -- (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this 28-month experimental research project is to develop advanced low emission high efficiency combustion techniques for application to industrial and utility boilers firing fossil and waste fuels. Primary emphasis will be on control of oxides of nitrogen (NO_x) through modification of combustion conditions. The facility is a subscale versatile furnace, with capacity of 3×10^6 Btu/hr, capable of firing a variety of solid, liquid and gaseous fuels. The furnace may be operated either in the wall firing mode, using up to 10 individual burners, or in the tangential, corner, firing mode using up to 24 individual fuel/air nozzles. The research burners for single wall or opposed wall firing are of a variable swirl double concentric design with capacities of either 300,000 Btu/hr or 1.5×10^6 Btu/hr.

The first year effort will focus on NO_x control techniques for conventional fossil fuels, primarily pulverized coal and residual oil. Initially, the combustion characteristics of the furnace will be studied to establish the correspondence to full-scale utility and industrial boilers. Subsequent testing will optimize NO_x control through two-stage combustion, flue gas recirculation and low excess air firing for the wall fired and tangentially fired configurations. Emphasis will be given to identification of optimum staging conditions for reduction of NO_x from coal fired boilers.

The second year program will explore NO_x control techniques for the firing of mixed conventional fuels, new alternate fuels, waste fuels, and mixtures of conventional fuels with alternate or waste fuels.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A		

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (Intramural)	2-10	David Lachapelle
X NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
☐ RESEARCH GRANT		IE RL-RTP/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200,000	75		6/06/75	10/06-77

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0061

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAB

TITLE OF PROJECT
Residential Oil Furnace System Optimization

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

G. Blair Martin, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

An eighteen month analytical and experimental program has been initiated for the establishment of technology for an integrated residential furnace system to combine minimum pollutant emissions with maximum system efficiency. The program is divided into two phases. Phase I consists of an analytical and experimental study to define the requirements of system components. Phase II involves the assembly and testing of a prototype system and the definition of an integrated residential heating system capable of NO_x emissions of less than 0.5g NO/kg of fuel with minimum CO, UHC and smoke, and overall system efficiency which is more than 10% higher than that achieved by current conventional systems.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED IN R/D (if any)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
None	s/	7/2/74

FOR OFFICE USE ONLY

SUPPORT METHOD (check one)
☐ AGENCY STAFF (in-house)
☒ SOLICITED CONTRACT
☐ RESEARCH GRANT

TASK NO.
3-1

PROJECT OFFICER
G. Blair Martin

RESPONSIBLE ORGANIZATION
IERL/RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY FOUND(?) BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$300 K	75	one	6/30/74	3/30/76

EPA Form 5760-1 (7-73) REPLACES EPA FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAB

TITLE OF PROJECT: Assessment and Application of Combustion Additive Process for NO_x Control

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Feb. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This effort provides for a two-phase study of Exxon proprietary technology for post-flame injection of a gaseous species (NH_3) to promote reduction of NO_x to nitrogen. The first phase of work will provide the necessary information to document feasibility and estimate costs for applying this technology to a coal-fired utility boiler. The results of the Phase I work will provide the basis for the Government's option to proceed with the second phase of work. Phase II, entitled "Field Demonstration of Additive Injection Technology on a Coal-Fired Boiler" will consist of discrete tasks designed to provide demonstration of this technology for two levels of NO_x control, i.e., 0.7 lb/10^6 Btu and 0.3 to 0.4 lb/10^6 Btu. The result of the Phase II effort will be a final report documenting the results of the field demonstrations. Additionally, the report will provide application guidelines and implementation costs of this technology for a variety of utility boiler types and sizes.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 4-4

PROJECT OFFICER: David G. Lachapelle

RESPONSIBLE ORGANIZATION: IERL-RTP/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200 K	75		Jan. 76(Est.)	

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 155 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAB

TITLE OF PROJECT
Advanced Combustion Systems for Stationary Gas Turbine Engines

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Feb. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The IERL-RTP is initiating a program to develop advanced combustors for stationary gas turbine engines. This program is designed to develop new hardware for both next generation turbine engines and potential retrofit to existing turbine engines. Emphasis will be placed on low emissions, high efficiency, and fuel versatility to directly address the Nation's pollution and energy problems. The study will include design, construction, and testing of new combustion systems based on advanced concepts to establish recommended low emission equipment compatible with future high efficiency gas turbine engines. These combustion systems must function with practical fuels that will be used in the late 1970's and 1980's.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (Intramural)	5-1	J. H. Turner
☒ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
☐ RESEARCH GRANT		IERL-RTP/ EPA

FUNDS INDICATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$450 K	75		Jan. 76(Est.)	

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAB

TITLE OF PROJECT
Development of Catalyst and system design criteria for Catalytic Combustors with application to stationary sources.

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
Dr. R. M. Kendall; Chief Corporate Scientist & Vice President/ Dr. C. B. Moyer; Manager Energy and Environmental Sciences/ Dr. L. W. Anderson; Manager, Environmental Engineering Systems/ Dr. J. P. Kesselring; Staff Engineer, Aerothermochemistry Dept./ Mr. C. J. Hartman, Senior Project Engineer/ Mr. A. J. Murphy, Staff Engineer.

NAME AND ADDRESS OF APPLICANT INSTITUTION
Aerotherm Division/Acurex Corporation
485 Clyde Avenue
Mountain View, California 94042

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this program is the establishment of design criteria for application of catalytic combustion to low emission, high efficiency stationary combustion systems. To accomplish this, a research and development program consisting of experimental small-scale catalyst and combustor concept screening, experimental and theoretical scale-up work for promising concepts, and design development of prototype systems based on selected concepts has been outlined.

Current plans are to secure several catalyst systems for small-scale screening experiments, under a variety of conditions and for several different fuels. Based on the results of a single-component catalyst systems, multi-component catalyst systems will be developed and tested extensively. The most promising systems will then be further tested by integration into a practical combustion system. These small-scale tests will investigate the effects of interstage cooling, mixing of secondary air, and bed heat removal. Data from these tests will be used to define optimum catalytic systems and specific equipment applications, and also to identify the mechanisms of catalyst performance by correlating the results with system properties and by conducting detailed analytical studies with appropriate computing technique, accounting for flow, diffusion, homogeneous and heterogeneous reaction effects, and heat transfer. Larger-scale catalyst system and system concept development experiments will be performed for verification and further development of optimum system, and conceptual designs of promising concepts will be made.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
[illegible]
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
6-2

PROJECT OFFICER
G. Blair Martin

RESPONSIBLE ORGANIZATION
IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY FUNDED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$163 K	75		6/30/75	10/30/76

EPA Form 5760-1 (7-73)   REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0061

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAS

TITLE OF PROJECT
Advanced Concepts for Effluent Treatment of Flue Gases for NO_x Control

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
Dr. Raimond Liepins

NAME AND ADDRESS OF APPLICANT INSTITUTION
Research Triangle Institute
P.O. Box 12194
Research Triangle Park, N.C. 27709

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. [illegible] the Smithsonian Science Information Exchange. Summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The techniques for controlling NO_x emissions from stationary sources are combustion modification and flue gas treatment. Combustion modification (CM) reduces the amount of NO_x formed while flue gas treatment (FGT) removes the NO_x from the stack gases after it has been formed.

It is the purpose of this project to assess the relative merit of a number of advanced concepts for effluent treatment to determine which offer the most promise for becoming a useful NO_x removal process and to recommend research and development required for further evaluation.

Initial studies considered for investigation include:

1. Simultaneous NO_x/SO_x Scrubbing with Organic liquids and/or solids.
2. NO_x Scrubbing, with Hydrated Polyamides.
3. NO_x Scrubbing, using dilute Acid Urea.
4. NO_x Scrubbing, using Fluorocarbons.
5. NO_x Scrubbing, using Cellulosics.
6. NO_x Scrubbing, Synergism Phenomenon.

Pending results of initial studies, laboratory evaluation of the most promising concepts will be undertaken. Studies and laboratory evaluations, as appropriate, will include consideration of effluent gases, liquids, and solids as potential secondary effects of the control process. As additional novel concepts come to light, the EPA Project Officer may direct the contractor to perform studies and analysis as appropriate.

IDENTIFY PROFESSIONAL SCHOOLS INVOLVED (Medical, Dental, etc.)
N.A.

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
Sept. 17, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
6-4

PROJECT OFFICER
Roger Christman

RESPONSIBLE ORGANIZATION
IERL-RTP, UIPD, PTB / EPA

FUNDS OBLIGATED
$59,205

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.
Unknown

STARTING DATE
6/75

ESTIMATED COMPLETION DATE
12/75

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND 1-SIE 76A WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAB

TITLE OF PROJECT
Burner Design Criteria for Current and Future Gaseous Fuels

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

D.H. Larson, Project Manager
D.R. Shoffstall, Technical Supervisor

NAME AND ADDRESS OF APPLICANT INSTITUTION
Institute of Gas Technology
3424 South State Street
IIT Center
Chicago, Illinois 60616

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this study is to combine the background and experience from previous IGT programs and to conduct carefully planned additional experiments to produce optimum, low-emission burner design criteria for the major burner classes. The study will establish the relative controls available through the various burner designs and classical modification techniques as well as establish what operation parameters will be changed. The specific result of this program will be to establish alternative control strategies for gas systems. It will also provide a basis for low-pollution design criteria with other fossil fuel systems including low-Btu gases.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED [illegible]	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

	SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER David G. Lachapelle
	AGENCY STAFF (In-house)	7-2	
X	NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION IERL, EACD, ORB / EPA
	RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS SUPPORT (Only) REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$30,000	75	1	6/30/73	8/30/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM [illegible] AND SSIE [illegible] WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAB

TITLE OF PROJECT: Development of Scale-up Criteria for Burner Design and Application to Industrial and Utility Boilers

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. M.P. Head, Project Director	Mr. R. Gershman
Dr. T.T. Tyson	Mr. R. E. Chamness
Mr. G. Carver	

NAME AND ADDRESS OF APPLICANT INSTITUTION

Ultrasystems, Inc.
2400 Michelson Dr.
Irvine, CA 92664

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. to the Smithsonian Science Information Exchange. Summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of the project is to arrive at design criteria for low emission burners for application to industrial and utility boilers and to establish scale-up criteria allowing application of the concepts to a variety of source sizes.

The approach is based on small scale (5 x 10^6 Btu/hr) experimental studies showing the potential for reducing NO_x levels from pulverized coal burners to the 100-200 ppm level (from 800). This study utilized a combined experimental and theoretical program to provide criteria for scaling these concepts to sizes of practical interest (100-200 x 10^6 Btu/hr). The experimental program will provide the data to derive the criteria and to assess multiple burner interaction effects.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		9/17/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	7-3	G. Blair Martin EPA, IERL

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$800 K	75	2	6/30/74	12/30/76

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SSIE 7EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AA8

TITLE OF PROJECT
Fuel Decomposition and Flame Reactions in Conversion of Fuel Nitrogen to NO_x

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
W.H. Nurick - D/522, Advanced Programs, Project Manager
A.E. Axworthy - D/522, Advanced Programs, Principal Investigator
D.R. Kahn - D/522, Advanced Programs, Member of the Technical Staff
V.H. Dayan - D/522, Advanced Programs, Member of the Technical Staff

NAME AND ADDRESS OF APPLICANT INSTITUTION
Rocketdyne Division, Rockwell International Corporation
6633 Canoga Avenue, Canoga Park, CA 91304

SUMMARY OF PROPOSED WORK -- (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A nine-month experimental and analytical program has been initiated to provide information on fuel decomposition, fuel oxidation and flame reactions which is required for the development of a complete understanding of the chemical phenomena involved in the conversion of organic fuel nitrogen compounds to NO_x during combustion. The program is divided into three tasks. Task I consists of additional experimental studies of the types of chemical reactions that fuel nitrogen species can undergo as fuel reacts in the early (preflame) stages of combustion. The pyrolysis and oxidation of model nitrogen compounds, coals, residual oils and alternate fuels will be investigated. Task II involves the study of combustion kinetics involved in fuel NO_x formation from HCN and NH_3 in premixed CH_4 flames including: (1) interactions with thermal NO_x formation, (2) more detailed analysis of nitrogen-containing species, and (3) organic nitrogen additives or diffusion flame studies. Task III will involve summarizing the data analysis and synthesizing the results into a quantitative scheme for the conversion of fuel nitrogen to NO and other pollutants.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A	s/ A. Axworthy	6/27/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	8-1	s/G. Blair Martin EPA, IERL

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$25,000	75	1	5/13/75	4/13/76

EPA Form 5720-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 7EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0061

PROJECT NO. (Do not use this space)
SSIE
EPA
77AA8

TITLE OF PROJECT
Definition of the Mechanism and Kinetics of the Formation of NO_x and Other Pollutants

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. V.S. Engleman
Dr. W. Bartok

NAME AND ADDRESS OF APPLICANT INSTITUTION
Exxon Research and Engineering Company
Government Research Laboratory
P.O. Box 8
Linden, N.J. 07036

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

(1) This study is being performed to relate the kinetics and mechanisms of pollutant formation reactions and those of hydrocarbon reactions. The emphasis in this program has been placed on NO_x formation and decomposition reactions, as they relate to hydrocarbon combustion.

(2) Experimental investigations were performed on the Exxon Multiburner, Jet-Stirred reactor and the new Adiabatic Stirred Reactor (ASC). Theoretical analyses are also being used to elucidate the experimental data.

(3) The effort under this contract is currently completed except for finalization of the final reports.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., ETC.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ RESEARCH CONTRACT ☐ RESEARCH GRANT	TASK NO. 8-3	PROJECT OFFICER W. S. Lanier RESPONSIBLE ORGANIZATION IERL-RTP/ EPA

FUNDS OBLIGATED Base 100 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. Unknown	STARTING DATE	ESTIMATED COMPLETION DATE Sept. 1975

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

SSIE

EPA 77AA5

TITLE OF PROJECT

Investigation of Aerodynamic Phenomena in Pollution Control

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Louis J. Spadaccini - Combustion Technology
Dr. Craig T. Bowman - Environmental Sciences
Mr. Henry McDonald - Chief Gas Dynamics

NAME AND ADDRESS OF APPLICANT INSTITUTION

United Aircraft Corporation Research Laboratories
400 Main Street
East Hartford, Connecticut 06108

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This document has been prepared in response to a Request for Proposal, DU-75-A088, from the U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. The research program will investigate aerodynamic phenomena in the control of pollutants from gaseous and heterogeneous combustion. The program has four primary objectives:

(1) To utilize recently developed optical and probing techniques to obtain detailed information on the chemical and physical processes occuring inside a combustor operating on gaseous and liquid fuels.

(2) To compare experimental observations with results from a combustor flow analysis (FPFP code) to further evaluate the theoretical model.

(3) To further develop the combustor flow analysis for predicting the physical and chemical processes occuring in combustors operating on gaseous and liquid fuels.

(4) To utilize information obtained from the experimental and theoretical investigation to evaluate potential emission control strategies for gaseous and liquid fuel combustors.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR s/Craig T. Bowman	DATE 4/9/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 8-5	PROJECT OFFICER W. Steven Lanier RESPONSIBLE ORGANIZATION IERL-RTP /EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200,000	75	Unknown	31 March 1975	30 Sept. 1976

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SSIE 164 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AA8

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Technical Services in Air Pollution Sample Acquisition and Analysis

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Forest Mixon

NAME AND ADDRESS OF APPLICANT INSTITUTION
Research Triangle Institute
Post Office Box 12194
Research Triangle Park, N.C. 27709

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The IERL-RTP is responsible for research, development and demonstration of air pollution control technology for stationary sources of pollution. During the conduct of studies to carry out this function, non-routine situations arise which require the utilization of measurement expertise and/or facilities not available within the Laboratory.

The project will evaluate sampling procedures and sampling equipment required for the acquisition of representative samples from solid, liquid, gaseous and/or multiphase streams associated with industrial processes and/or air pollution control systems. Where specialized equipment is required, the effort shall develop specifications, fabricate the equipment, and perform laboratory and field evaluations.

The project will also evaluate analytical procedures including sample handling, storage and preparation. Physical and chemical analyses will be performed on selected samples using wet chemical or instrumental techniques such as atomic absorption; neutron activation; X-ray fluorescence; X-ray diffraction; spark source mass spectrometry, gas chromatography; infrared, ultraviolet and visible spectroscopy; liquid chromatography; optical emission specteoscopy; electron microscopy; optical, electrical or aerodynamic particle size.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D. Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 9

PROJECT OFFICER: Larry Johnson

RESPONSIBLE ORGANIZATION: IERL-RTP, IPD, PMB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$113,915	75	Unknown	3 May 1974	3 May 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 1EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0011

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAB

TITLE OF PROJECT
Technical Manual for Biological Testing

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Forest Mixon

NAME AND ADDRESS OF APPLICANT INSTITUTION
Research Triangle Institute
Post Office Box 12194
Research Triangle Park, N.C. 27709

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The environmental assessment of process streams requires a detailed evaluation of the stream properties. Chemical analyses alone cannot be utilized to prioritize effluent streams impact. As an adjunct to analysis, rapid and inexpensive biological tests are desireable.

The project will produce a technical manual dealing with recommended procedures for sampling and analysis of stationary sources and process streams for biologically active material. Methods for sample acquisition, handling, storage, and bioassay will be covered.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
9

PROJECT OFFICER
L.D. Johnson

RESPONSIBLE ORGANIZATION
IERL-RTP, IPD, PMB/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
58,186	75	Unknown	9/12/75	11/3/75

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SSIE 1EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AA8

TITLE OF PROJECT **Environmental Assessment Analysis of Organic Substances from Stationary Sources and Process Streams**

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Peter Jones

NAME AND ADDRESS OF APPLICANT INSTITUTION

Battelle Columbus Labs.
505 King Ave.
Columbus, Ohio 43201

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will produce a technical manual dealing with recommended procedures for sample handling and analysis of organic material in environmental and process samples. It is anticipated that most of the necessary information will be derived from the literature and the contractor's past experience with such samples, but additional laboratory work is permissible within the time limitations given. All possible information concerning expected costs, specificity, accuracy and precision should be included. This may require a multi-level approach in which initial screening procedures are priced at one level and more detailed approaches are listed with higher expected costs.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 9	PROJECT OFFICER L.D. Johnson RESPONSIBLE ORGANIZATION IERL-RTP, IPD, PMB / EPA

FUNDS OBLIGATED $29,590	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y. Unknown	STARTING DATE 5/1/75	ESTIMATED COMPLETION DATE 9/15/75

EPA Form 5700-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AA8

TITLE OF PROJECT

Particle Sizing Interferometer Electronics Systems

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Feb. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The IERL-RTP has developed, through contract, a laser velocimeter system which is presently being used in-house to obtain velocity profile data from flames in research furnaces. This particular study will add to the present capability of the laser velocimeter system by measuring the size of each particle generating the velocity data. The particle size data will prove useful to researchers in two respects. First, by knowing the size of the particle which generated a velocity signal the validity of that velocity signal can be evaluated. This is true because there is a direct relationship between particle size and velocity accuracy. Secondly, the particle size data in and of itself is of interest.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED IN [illegible]
SIGNATURE OF PRINCIPAL INVESTIGATOR
DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (In-house)
X NEGOTIATED CONTRACT
REVIEWED GRANT

TASK NO.: 9-1

PROJECT OFFICER: William B. Kuykendal

RESPONSIBLE ORGANIZATION: IERL-RTP / EPA

FUNDS ON ASSIGNED: $75 K Base

F.Y.: 75

NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.:

STARTING DATE: Jan. 76 (Est.)

ESTIMATED COMPLETION DATE: 6/77

EPA Form 5780-1 (7-73) REPLACES PHS FORM 166 AND SSIE 766 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAS-0106

TITLE OF PROJECT
Definition of the Mechanism and Kinetics of the Formation of NO_x and Other Pollutants

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. V.S. Engleman
Dr. W. Bartok

NAME AND ADDRESS OF APPLICANT INSTITUTION
Exxon Research and Engineering Company
Government Research Laboratory
P.O. Box 8
Linden, N.J. 07036

SUMMARY OF PROPOSED WORK - (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

(1) This study is being performed to relate the kinetics and mechanisms of pollutant formation reactions and those of hydrocarbon reactions. The emphasis in this program has been placed on NO_x formation and decomposition reactions, as they relate to hydrocarbon combustion.

(2) Experimental investigations were performed on the Exxon Multiburner, Jet-Stirred reactor and the new Adiabatic Stirred Reactor (ASR). Theoretical analyses are also being used to elucidate the experimental data.

(3) The effort under this contract is currently completed except for finalization of the final reports.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (MEDICAL, DENTAL, ETC.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (INHOUSE) X CONTRACT ☐ RESEARCH GRANT	77AAS-0106	W.S. Lanier ORGANIZATIONAL ELEMENT [illegible] IERL-RTP

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY APPROVED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
N.A.	75	Unknown		Sept. 1975

EPA Form 5760-1 (7-72) REPLACES EPA FORM [illegible] WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

FORM APPROVED
OMB NO. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAB-103

TITLE OF PROJECT
NO_x Control Technology Status Reports

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
L.W. Anderson, Project Manager

NAME AND ADDRESS OF APPLICANT INSTITUTION
Aerotherm Division, Acurex Corporation
485 Clyde Avenue, Mountain View, CA 94042

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Numerous technical papers and reports have been published in recent years on the subject of control of nitrogen oxides from stationary sources. The present state-of-the-art is well established and has been adequately reported in the literature. Federal New Source Performance Standards for NO_x have been promulgated for a variety of equipment classes and are planned for other sources in the near future. Additionally, State and local standards for NO_x are in effect for specific existing and new combustion sources.

It is important that the technical community engaged in research and development of NO_x control methods, as well as those involved in standards preparation and/or enforcement, be kept informed of the status of NO_x control technology developments and implementation. By providing periodic concise announcements of planned or implemented NO_x control technology, the dialogue within the "NO_x-community" can be improved and technology transfer can be expedited.

[illegible]	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

[illegible]	TASK NO.	PROJECT OFFICER
R	77AAB-103	David G. Lachapelle IERL, EACD, CRB

[illegible]	[illegible]	[illegible]	STARTING DATE	ESTIMATED COMPLETION DATE
$7,100	75	1		

EPA Form 1700-1 [illegible] PREVIOUS EDITION MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0083

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAU

TITLE OF PROJECT
Emissions Assessment of Conventional Combustion Systems

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Ronald A. Venezia, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION
INTERIM

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). (Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project will fill the major gaps in the air, water, and solid waste emission data base for conventional combustion systems. The emissions will be investigated on a unit operations level (e.g., fuel storage, combustion, waste disposal, etc.) including specifying the physical and chemical state in which the pollutant is emitted (i.e., vapor, aerosol, adsorbed gas, liquid suspension, element or compound). The emission rates of the pollutants will be by the most appropriate means, such as field sampling, material balance calculations, or manipulation of existing data.

IDENTIFY PROFESSIONAL SCHOOL (If any) AND DEPARTMENT (Medical, Dental, Etc.)
N.A.

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Inhouse)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
1

PROJECT OFFICER
Ronald A. Venezia

RESPONSIBLE ORGANIZATION
IERL-RTP, IPD, CPB/EPA

FUNDS OBLIGATED
$600 K Base
$1100 K Energy

F.Y.
76

NO. OF FUTURE YEARS (TENTATIVELY) ASSUMED BEYOND CURRENT F.Y.
2

STARTING DATE
12/75

ESTIMATED COMPLETION DATE
12/77

EPA Form 5740-1 (7-73) REPLACES PHS FORM 166 AND SSIE 163 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAU

TITLE OF PROJECT
Complex Terrain Modeling Study

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

George C. Holsworth, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This proposed study is to be co-sponsored by the Meteorology and Assessment Division, Environmental Sciences Research Lab-RTP, and by the Industrial Environmental Research Lab.-RTP, OR&D.

The trend toward locating large power plants in mountainous terrains, near readily accessible coal supplies, has created a new concern for the implications of the SO_2 laden atmospheres surrounding these facilities. The question of the transport and transformation of these atmospheres, and of the ground-level burden created by these atmospheres has been the impetus for this proposed study.

This effort will seek to provide comprehensive data on SO_2 emissions in complex terrains by continuous monitoring at remote locations of expected high SO_2 concentrations, and by airborne and mobile measurements at surface levels. These results, in combination with meteorological factors, will produce a comprehensive assessment upon which the Agency can base rational, defensible policy decisions.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ AGENCY STAFF (Intramural)	1	George C. Holsworth
☒ NEGOTIATED CONTRACT		Environmental Sciences Research Lab./EPA Meteorology & Assessment Div., ORD
☐ REQUESTED GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$600 K Base $1100 K Energy	75	Unknown	12/75	12/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. [illegible]
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77AAU

TITLE OF PROJECT

Establish Operating Procedures for Fine Particulate Control Equipment

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

D.C. Drehmel, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Environmental Protection Agency is developing technology for abatement of fine particle emissions from stationary sources. The Agency is seeking an organization to establish operating procedures for fine particle control equipment.

The work will require that the contractor shall:

1. Review the current practice of particulate control for a given source such as power generation or some aspect of chemical or industrial processing.
2. Review recent fine particle collection data and interpret mass efficiency data in terms of fine particle collection for the selected source.
3. Review design, start-up, and operating procedures and problems associated with particulate abatement equipment for the given source.
4. Interpret fine particle collection with respect to operating procedures and problems and establish necessary procedures.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	
	AGENCY STAFF (Intramural)	1	PROJECT OFFICER D.C. Drehmel
X	NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION IERL-RTP, UPID, PTB / EPA
	RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$600 K Base $1100 K Energy		Unknown	12/75	12/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAU

TITLE OF PROJECT
Preliminary Emissions Assessment of Conventional Combustion Systems

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Norman Surprenant

NAME AND ADDRESS OF APPLICANT INSTITUTION
GCA Corp.
GCA/Technology Div.
Burlington Rd.
Bedford, Mass 01730

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will establish an identity matrix across air, water and solid waste pollutants based on available data from process and control evaluations. The matrix will: summarize on-going and planned work in conventional combustion system environmental assessment; list the known pollutants being emitted from each combustion system studied; rank pollutants according to the expected intensity of their impact on the environment; delineate the established or potential impact in the areas of air, water, and solid waste pollution; define the major gaps in the pollutant data base by combustion system type, operating parameter variation, composition of the fuel burned and by all other parameters deemed relevant to the composition and quantity of pollutant emissions.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (Intramural)	1	Ronald A. Venezia
☒ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
☐ RESEARCH GRANT		IERL-RTP, IPD, CPB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$600 K Base $1100 K Energy	75	N.A.	Mar. 6, 1975	Nov. 1, 1975

EPA Form 5720-1 (7-72)   REPLACES PHS FORM 166 AND SI-SIE 72, WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
DPS
77AAU

TITLE OF PROJECT
Particulate Sampling and Support

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Mar. 76.

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A number of energy and pollution control projects in IERL-RTP require extensive characterization of the particulate material in the flow streams. At the state of the art level the goal is to provide the necessary procedures to Laboratory groups to determine the environmental impact of the particulate contained in various systems. This effort will provide for the evaluation, development, field testing & applications research of the particulate sampling procedures necessary to conduct environmental assessments and technology development projects in the energy and industrial processes programs. The contractor will be responsible for: measurement evaluation and development; preparation of guidelines and recommended procedures; solution of specific problems; and, assistance to project officers and contractors in the application of procedures to specific process streams.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO. 2

PROJECT OFFICER
D. Bruce Harris

RESPONSIBLE ORGANIZATION
IERL-RTP/ EPA

FUNDS OBLIGATED
$125 K Base
$300 K Energy

F.Y. 75

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.

STARTING DATE 3/75

ESTIMATED COMPLETION DATE 6/76

EPA Form 5760-1 (7-73)   REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0002

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAU

TITLE OF PROJECT
Preparation of a Guideline Document for Environmental Assessment of Energy Systems

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Paul F. Fennelly, Arthur S. Werner

NAME AND ADDRESS OF APPLICANT INSTITUTION
GCA Corp., GCA/Technology Div.
Burlington Rd.
Bedford, Mass. 01730

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will provide a guideline document that will serve as a basis for standardization of environmental assessment documents. It will contain in a unit operations format: a description of process operations involved; a definition of the potential environmental impact areas that need to be addressed; methodology for determining the magnitude of the impact for each energy system; and procedures for conducting environmental assessments. The document should enumerate: the specific methods which could be employed when conducting environmental assessments; the criteria to be utilized in assessing the magnitude of the environmental impacts; the methodology for determining potential interactions between the unit operations which may result in modified environmental impacts; and the environmental impacts of pollution control systems associated with any unit operation. The data base which is required to assess the potential environmental impacts of energy systems; the sources of data which the energy system developer should use in conducting environmental assessment studies; and the accuracy required in the environmental assessment studies will be defined.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ AGENCY STAFF (Intramural)	3	PROJECT OFFICER: Ronald A. Venezia
☒ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION: IERL-RTP, IPD, CPB /EPA
☐ RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$117,900	75	N.A.	28 Mar. 1975	3 Nov. 1975

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 78A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAU

TITLE OF PROJECT

Develop and Demonstrate Improved Fine Particulate Filter Systems

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Norman Surprenant

NAME AND ADDRESS OF APPLICANT INSTITUTION

GCA Technology Division
Bedford, Mass. 01730

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Utilizing the filter bags retained from testing at earlier sites, the Contractor shall examine them to determine the manner in which particles are retained in and on the fabric. Items that shall be investigated include, but are not limited to, surface deposition and interstitial deposition, dust holding capacity, entanglement, particle and pore shape and size, electrostatic forces, Kelvin attachment by water vapor or other condensed vapors, and other adhesive or cohesive forces.

Single bag/single compartment experimentation in the laboratory shall be performed so that sufficient information is obtained to write design equations for fabric filters. Knowledge of the manner in which particles deposit on the fabric surface shall be used to formulate equations which will describe gas flow and particle flow through the fabric surface as a function of time, gas properties and particle properties.

The descriptive and design equations shall be presented subject to suitable cautions in regard to error bands found from the field and laboratory work, and applicability to disparate systems.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (if any)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO. 4

PROJECT OFFICER
J.H. Turner

RESPONSIBLE ORGANIZATION
IERL - RTP, UIPD, PTB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$42,700	75	Unknown	5 June 1974	5 Sept. 1976

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

SSIE
EPA

77AAU

TITLE OF PROJECT Electrostatic Precipitators for Control of Fine Particulate Emissions [illegible]

FULL NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

NAME AND ADDRESS OF APPLICANT INSTITUTION
Southern Research Institute
2000 9th Ave., S
Birmingham, Ala. 35205

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Electrostatic precipitators are commonly used to control particulate emissions from effluent gas streams. Application of electrostatic precipitators is hampered by lack of data on: collection efficiency as a function of particle size distribution and dust resistivity and electrostatic precipitator design and operating parameters; effects of mechanical factors on collection efficiency; dust resistivity as a function of ash and gas chemistry, etc. The contractor will conduct field tests, laboratory experiments, and theoretical studies to provide the needed data. The contractor will also develop instrumentation necessary to obtain the data.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR
Dr. Sabert Oglesby

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
4

PROJECT OFFICER
Leslie Sparks

RESPONSIBLE ORGANIZATION
IERL-RTP/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$427,800	75		6/30/75	12/30/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 7GA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0082

PROJECT NO. (Do not use this space)

SSIE

EPA 7AAU

TITLE OF PROJECT

Design and Fabrication of a Pilot-Scale Electrostatic Precipitator

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM - final expected March '76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). Summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. In the Smithsonian Science Information Exchange. Your summary is to be used for these purposes.

An electrostatic precipitator can be described in terms of the system input variables and subfunctions. The complexity of the system precludes a detailed evaluation of each subfunction in full-scale precipitators operating on industrial processes because of both the costs and difficulty in controlling variables in industrial operations. Thus, it is desirable to construct a general purpose precipitator with sufficient flexibility to investigate the effects of modifications to individual system subfunctions. In addition, a pilot-scale precipitator provides the means for evaluating a computer systems analysis model for describing precipitator behavior. A preliminary computer model of an electrostatic precipitator system was developed and modified under previous contracts. In order to achieve these objectives, the contractor shall design and, upon approval of the design, fabricate a pilot-scale electrostatic precipitator.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER G. H. Ramsey RESPONSIBLE ORGANIZATION IERL-RTP / EPA	
☐ AGENCY STAFF (Intramural)	4		
☒ NEGOTIATED CONTRACT			
☐ RESEARCH GRANT			

FUNDS ALLOCATED $900 K Base $1000 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE Feb. 76 (Est.)	ESTIMATED COMPLETION DATE 6/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0083

PROJECT NO. (Do not use this space)
SIE
EPA
21AAU

TITLE OF PROJECT Demonstration of High-Efficiency, High Throughput Baghouse on Industrial Boilers

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Fabric filtration has traditionally been one of the major methods of collecting particulate matter.

Laboratory and field data have shown fabric filters to be extremely efficient even into the submicron range for a variety of sources (1, pp.6-103, 6-104). It has, however, been only in the last decade that serious attempts have been made to use baghouses on large combustion sources. The IERL-RTP is now engaged in measuring performance of baghouses on several utility and industrial boilers to confirm high efficiencies for flyash down to about 0.01um.

In order to expand the availability of fabric filtration for control of fine particulates, it is necessary to provide systems which can operate at air-to-cloth ratios greater than presently used, and to have fabrics that can be used at the higher ratios and are durable.

During the past two years a fabric filter system has been developed operating at 4 to 5 times the usual air-to-cloth ratio of 2:1(2).

The purpose of this effort is to prove the performance capabilities of the ESR filter system on a small utility boiler and thus provide operating and cost data for users and manufacturers, determine durability and effectiveness of new fabrics, find optimum operating conditions and determine scale-up factors for production filter systems.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

	SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER J. H. Turner
	AGENCY STAFF (Intramural)	4	RESPONSIBLE ORGANIZATION IERL-RTP / EPA
X	NEGOTIATED CONTRACT		
	RESEARCH GRANT		

FUNDS OBLIGATED $900 K Base $1000 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE Feb. 76 (Est.)	ESTIMATED COMPLETION DATE 12/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE EPA
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAU

TITLE OF PROJECT

Evaluation & Development of Instrumentation for Process Control of Airborne Asbestos

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. R. C. Rossi, Section Manager

NAME AND ADDRESS OF APPLICANT INSTITUTION

The Aerospace Corporation
2350 East El Segundo Blvd.
El Segundo, Calif. 90245

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (100 words or less). Omit confidential data. Summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. In the Smithsonian Science Information Exchange.

The objective of this grant is to develop methodology to measure the efficiency of devices collecting fiberous maturial such as asbestos. The development of the proposed techniques would enable particulate control specialists to quickly evaluate the performance of collectors applied to this source. Continued development should provide a device for process control by the manufacturer.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) NEGOTIATED CONTRACT RESEARCH GRANT		TASK NO. 4		PROJECT OFFICER D. Bruce Harris RESPONSIBLE ORGANIZATION IERL-RTP / EPA	
FUNDS OBLIGATED $50,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. one (1)		STARTING DATE 01/18/74	ESTIMATED COMPLETION DATE 06/17/75

ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

SSIE
EPT
77AAU-04A

TITLE OF PROJECT:
Preparation of a Guideline Document for Environmental Assessment of Energy Systems

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Paul F. Fennelly, Arthur S. Werner

NAME AND ADDRESS OF APPLICANT INSTITUTION
GCA Corp., GCA/Technology Div.,
Burlington Rd.,
Bedford, Mass. 01730

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will provide a guideline document that will serve as a basis for standardization of environmental assessment documents. It will contain in a unit operations format: a description of process operations involved; a definition of the potential environmental impact areas that need to be addressed; methodology for determining the magnitude of the impact for each energy system; and procedures for conducting environmental assessments. The document should enumerate: the specific methods which could be employed when conducting environmental assessments; the criteria to be utilized in assessing the magnitude of the environmental impacts; the methodology for determining potential interactions between the unit operations which may result in modified environmental impacts; and the environmental impacts of pollution control systems associated with any unit operation. The data base which is required to assess the potential environmental impacts of energy systems; the sources of data which the energy system developer should use in conducting environmental assessment studies; and the accuracy required in the environmental assessment studies will be defined.

[illegible] INVOLVED N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT [illegible]	TASK NO. 77AAU-04A	PROJECT OFFICER Ronald A. Venezia RESPONSIBLE ORGANIZATION IERL-RTP, IPD, CPB

[illegible] $117,[illegible] 75	NO. OF FUTURE YEARS TENTATIVELY FUNDED BEYOND CURRENT F.Y. N.A.	STARTING DATE 28 Mar. 1975	ESTIMATED COMPLETION DATE 3 Nov. 1975

EPA Form [illegible] REPLACES [illegible] FORM [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77 AAU-04A

TITLE OF PROJECT
Evaluation of "Guideline Document for Environmental Assessment of Energy Systems"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Sidney Bourgeois, Morris M. Penny

NAME AND ADDRESS OF APPLICANT INSTITUTION
Lockheed Missiles and Space Co., Inc.
Huntsville Research and Engineering Center
P.O. Box 1103, Huntsville, Alabama 35807

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project is a critique of the "Guideline Document for Environmental Assessment of Energy Systems," and contains the following: (1) analysis of the scope, content, potential applicability and usefulness; (2) suggested additions and/or revisions, including standardization of data and other relevant information; (3) discussion of unresolved technical, administrative or other issues relative to environmental source assessment; (4) summary of major conclusions and recommendations. To effect this evaluation a preliminary environmental assessment of (1) Hydrogen Combustion, (2) Magnetohydrodynamics, and (3) Coal Liquefaction will be prepared.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 04A	PROJECT OFFICER Ronald A. Venezia RESPONSIBLE ORGANIZATION IERL, RTP, IPD, CPB /EPA

FUNDS OBLIGATED $47,900	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. N.A.	STARTING DATE 22 May 1975	ESTIMATED COMPLETION DATE 3 Nov. 1975

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0041

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77AAU

TITLE OF PROJECT

Evaluation of "Guideline Document for Environmental Assessment of Energy System"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

P.E. Muehlberg, B.W. Barnes

NAME AND ADDRESS OF APPLICANT INSTITUTION

DOW Chemical USA, Texas Div., Contract Research
Bldg. A-1214
Freeport, Texas 77541

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress. (200-300 words in this space. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project is a critique of the "Guideline Document for Environmental Assessment of Energy Systems," and contains the following: (1) analysis of the scope, content, potential applicability and usefulness; (2) suggested additions and/or revisions, including standardization of data and other relevant information; (3) discussion of unresolved technical, administrative or other issues relative to environmental source assessment; (4) summary of major conclusions and recommendations. To effect this evaluation a preliminary Environmental Assessment of Geothermal Energy Systems and Power Park Energy Systems will be prepared.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 4A

PROJECT OFFICER: Ronald A. Venezia

RESPONSIBLE ORGANIZATION: IERL-RTP, IPD, CPB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$900 K Base $100 K Energy	75	N.A.	6 May 1975	3 Nov. 1975

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT** PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE UPS 77AAU

TITLE OF PROJECT

Evaluation of Novel Devices

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM - Final expected Dec. 75

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives (2) Approach (3) Current Plans and/or Progress (200 words or less). [illegible] In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Fine particle control from stationary sources is important from the standpoint of environmental protection. For the most part, fine particle control technology is now at a very early stage of development. Limited tests of conventional equipment (scrubbers, filters, electrostatic precipitators) have shown capability for collection of fine particulate where very high mass efficiencies are attained. However, to reach these high efficiencies, high energy input and/or large collector size is required. Novel devices or systems based on new collection principles or on radical redesign of conventional collectors are sometimes offered by private developers. This effort will provide for testing and evaluation of those devices which show promise for high efficiency collection of fine particulate.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 5	PROJECT OFFICER Dale L. Harmon RESPONSIBLE ORGANIZATION IERL-RTP / EPA

FUNDS OBLIGATED 5500 K Base 9500 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE Nov. 75 (Est.)	ESTIMATED COMPLETION DATE 12/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND S.I.E. 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SIE
EPA

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77AAU

TITLE OF PROJECT **Feasibility Demonstration of Nonwoven Double Mat Filters for Control of Fine Particle Emissions**

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Principal Investigator: Michael A. Shackleton - Sr. Project Engineer
Other Professional Personnel:
Eugene E. Grassel - Sr. Research Chemist
Robert E. Frey - Vice President Corporate Development & Technology, Torit Div.
Ronald E. Sundberg - Research and Development Manager, Torit Div.

NAME AND ADDRESS OF APPLICANT INSTITUTION

Donaldson Company, Inc.
P.O. Box 1299, 1400 W. 94 Street
Minneapolis, Minnesota 55440

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this work is to demonstrate the feasibility of a new filtration concept, "Nonwoven, Double Mat Filters," as an effective and economic technique for control of fine particle emissions.

The effort will show by analysis and testing of prototypes that the new concept is applicable to the control of fine particle emissions. Both the technical and economic limitations to commercial use will be identified.

This program will be a 24-month effort.

Reference Contract No. 68-02-1878.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., ETC.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
	s/Michael A. Shackleton	17 July 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (In-house)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.: 5

PROJECT OFFICER: D.C. Drehmel

RESPONSIBLE ORGANIZATION: IERL-RTP, UPID, PTB/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$57,500	75	Unknown	1 July 1975	30 June 1976

EPA Form 5760-1 (7-72) REPLACES PHS FORM 196 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAU

TITLE OF PROJECT
Wind Tunnel Evaluation of Particle Sizing Instruments

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Forest Mixon

NAME AND ADDRESS OF APPLICANT INSTITUTION
Research Triangle Institute
Post Office Box 12194
Research Triangle Park, N.C. 27709

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. Summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The contractor shall evaluate a group of particle sizing devices in EPA's wind tunnel. The number of devices to be evaluated shall not exceed ten and shall include, but not be limited to the following:

1. Environmental Systems Corp., PILLS IV
2. GCA Corp., Beta Impactor
3. Brink Impactor
4. Andersen Impactor

The contractor shall ensure that each device is operating properly and shall consult with the manufacturer if necessary. All devices to be evaluated shall be supplied by EPA.

The contractor shall develop a test matrix for evaluating the selected instruments for approval by the Task Officer. The test matrix shall consider levels of particulate concentration and types of particulate as well as the various instruments.

The contractor shall be responsible for:

1. Developing the test matrix.
2. Coordinating the testing with the operating contractor for the wind tunnel.
3. Ensuring that the instruments are properly operated.
4. Obtaining test particulate.
5. Conducting the tests.
6. Analysis of the data.
7. Report of the results.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 5	PROJECT OFFICER W. B. Kuykendal RESPONSIBLE ORGANIZATION IERL-RTP, IPD, PMB / EPA

FUNDS OBLIGATED $500 K Base $50.0 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. Unknown	STARTING DATE 6/9/75	ESTIMATED COMPLETION DATE 10/15/75

EPA Form 5700-1 (7-72) REPLACES PHS FORM 128 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAU

TITLE OF PROJECT

Control of Fine Particle Emissions

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. D. H. Archer, Manager, Chemical Engineering Research
Dr. R. W. Lancaster, Senior Engineer, Chemical Engineering Research
Dr. D. F. Ciliberti, Senior Engineer, Chemical Engineering Research

NAME AND ADDRESS OF APPLICANT INSTITUTION

Westinghouse Research Laboratories
Beulah Rd.
Pittsburgh, Pa. 15235

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). (Omit confidential data) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Environmental Protection Agency seeks to demonstrate, on a small scale, the feasibility of new concepts for the control of fine particle emissions.

Horizons, Inc. has developed a unique porous ceramic membrane with controlled pore size and superior mechanical properties. A review of the available information on this material made by the Westinghouse Electric Corporation shows that it has the potential for development into a high-efficiency dust collection filter. While the material has a broad range of potential application, it is uniquely suitable for fine particle control in high temperature, high pressure processes where its mechanical strength and chemical inertness are particularly valuable. As a consequence, it may find widespread acceptance in coal conversion processes now under development - coal gasification and fluidized bed combustion are of particular interest.

The Westinghouse Electric Corporation in a cooperative program with Horizons, Inc. is developing and testing ceramic filter elements manufactured from porous alumina membranes. The program is directed primarily toward particulate control in coal gasification - combined cycle power plants - an area in which there is urgent need for adequate particle collection equipment.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
NA	David H. Archer	18 July 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO. 5

PROJECT OFFICER: D. C. Drehmel

RESPONSIBLE ORGANIZATION: IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$181,363	75		6/30/75	6/30/77

EPA Form 5700-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAU

TITLE OF PROJECT
Fine Particle Scrubbing by High Gradient Magnetic Separation (HGMS)

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. F. O. Mixon, Manager
Process Engineering Department

NAME AND ADDRESS OF APPLICANT INSTITUTION

Research Triangle Institute
Research Triangle Park, N.C.

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this project is to demonstrate on a small scale the feasibility of using a high gradient magnetic separation (HGMS) system as an effective and economic technique for control of fine particulate emissions. Phase I of the project will include a review of the theoretical concepts of HGMS as applied to fine particle collection with emphasis on collection efficiency, collector regeneration, and power and residence time requirements. Bench scale experiments will follow to verify or disprove the theoretical predictions. A preliminary analysis of capital and operating costs will be performed to compare the system to conventional equipment, i.e., scrubbers, electrostatic precipitators or fabric filters. If the results obtained in Phase I are technically and economically attractive, Phase II will consist of the design, construction and operation of an experimental model of at least 500 cfm capacity to obtain additional information on the performance of the HGMS system with respect to power input, residence time, temperature, particulate type, and particulate size distribution.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO. 5

PROJECT OFFICER
D.C. Drehmel

RESPONSIBLE ORGANIZATION
IERL-RTP, UPID, PTB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$111,100	75	Unknown	1 July 1975	30 June 1977

EPA Form 1720-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0061

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAU

TITLE OF PROJECT
Mobile Bed Flux Force/Condensation Scrubber for Collection of Fine Particles

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM – Final expected Oct. '75

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A new class of scrubbers (Flux Force/Condensation or FF/C Scrubbers) which take advantage of diffusiophoresis and particle growth due to water vapor condensation is being developed under EPA contracts. Previous studies have proven the feasibility of FF/C scrubbing. Recent data on the performance of mobile bed scrubbers indicate that a mobile bed scrubber may be an efficient FF/C scrubber. Because mobile bed scrubbers are commonly used in SO_x scrubbing systems, it is important to determine if such scrubbers can be used as FF/C scrubbers to collect fine particles. The collection of SO_x and fine particles in a single device would be a major advance.

The purpose of this study is to evaluate mobile bed scrubbers for use as flux force/condensation scrubbing devices and to develop mathematical models and design equations for such scrubbers. This will be accomplished by conducting theoretical and small pilot plant studies of mobile bed flux force/condensation scrubbers.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
[✓ NEGOTIATED CONTRACT]
RESEARCH GRANT

TASK NO. 5

PROJECT OFFICER
Leslie E. Sparks

RESPONSIBLE ORGANIZATION
IERL-RTP / EPA

FUNDS OBLIGATED $500 K Base $500 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE Sept. 75 (Est.)	ESTIMATED COMPLETION DATE 12/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND 5-21R 164 WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0021

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SSIE

EPA

77AAU

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT: **Test & Evaluation Program for Selection, Testing, & Evaluation of Fine Particulate Control Devices & Modification of IERL Aerodynamic Test Chamber (Wind Tunnel)**

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Mr. F. E. Moreno, Eng. Systems Department; Manager, Environmental Eng. Program/ Mr. J. J. Reese, Engineering Dept.; Senior Project Engineer / Mr. D. B. Blann; Leader, Systems Design Section / Dr. H. A. Jaffe; Manager, Advanced Programs

NAME AND ADDRESS OF APPLICANT INSTITUTION

Acurex Corporation / Aerotherm Division
485 Clyde Avenue
Mountain View, California 94042

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objectives: Design, fabricate, install, perform demonstration tests, and provide a research program for a fine particulate cleanup device evaluation facility to be included as a modification to the EPA Industrial Environmental Research Laboratory Aerodynamic Test Chamber.

Approach: The existing facility will be modified by the addition of a 2500 cfm humidity, temperature, and pressure controlled test leg. Pneumatic dust transport and slurry handling equipment will be installed to treat particulate collected by whatever wet and dry devices are evaluated. Appropriate instrumentation and equipment will be included for proper system control and monitoring.

Current Plans: A preliminary system design will be generated and reviewed before a final design is generated for construction purposes. Concurrently, the research and development program will begin with a determination of appropriate wet and dry particulate removal devices for use with this facility.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		July 16, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (Intramural)	6	Dale Harmon
☒ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
☐ RESEARCH GRANT		IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
100,000	75		6/30/75	8/30/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAZ

TITLE OF PROJECT

Shawnee Lime/Limestone Scrubbing Advanced Test Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Air Quality Group of the Process Technology Department

G.H. Dyer - Dept. Mgr.	M. Epstein - Project Mgr.	S. Wang - Project Eng.
R.M. Sherwin - Group Mgr.	D.A. Burbank - Site Mgr.	C.C. Leivo - Asst. Site Mgr.

NAME AND ADDRESS OF APPLICANT INSTITUTION

Bechtel Corporation - Scientific Development Operations
P.O. Box 3965
San Francisco, California 94119

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Based on the results of the Phase III Test Program under predecessor Contract PH 22-68-67, and other supporting programs of EPA, Bechtel is performing an extended testing program at the EPA Alkali Scrubbing Test Facility, TVA Shawnee Steam Plant, Paducah, Kentucky, for the removal of SO_2 and ash particulate from coal-fired furnace gas. The test facility consists of two parallel scrubber systems - a venturi followed by a spray tower and a Turbulent Contact Absorber. Each system is capable of treating approximately 10 Mw equivalent (30,000 acfm at 300° F) of flue gas containing 1800-4000 ppm sulfur dioxide and 2 to 5 grains/scf of particulates. The scrubbers are integrated into the flue gas exhaust ductwork of boiler No. 10.

The major goals of the overall test program are: (1) to characterise the effect of important process variables on sulfur dioxide and particulate removal, (2) to develop mathematical models for economic scale-up to full-size scrubber facilities, and (3) to demonstrate reliability.

The process improvement objectives of the current program are to improve (1) alkali utilization, (2) SO_2 removal, (3) sludge disposal properties, and (4) system reliability. Specific tasks to be performed are: limestone/lime advanced testing, sludge fixation studies, and economic studies.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.[illegible])	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A	s/Michael Epstein	9-17-75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
	AGENCY STAFF (Intramural)	A-1	John E. Williams
X	NEGOTIATED CONTRACT		IERL-RTP, UIPD, E/ETB / EPA
	RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$907 K	75	2	6/29/74	6/30/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 764 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space) SSIE EPA
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAZ

TITLE OF PROJECT
Studies of SO_2 Wet Scrubbing Utilizing EPA Research Model Scrubber

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
R.E. Opferkuch, Project Manager

NAME AND ADDRESS OF APPLICANT INSTITUTION
Monsanto Research Corp.
1515 Nicholas Road
Dayton, Ohio 45407

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Model lime and limestone scrubbers are operated at NERC/RTP to provide in-house research capability in the FGD area. The scrubbers are designed for maximum flexibility and quick evaluation of a wide range of process variables and operating conditions. The work is centered upon identification of optimum scrubber operating conditions for application to utilities using high-sulfur U.S. Eastern coals.

Objectives: (1) to provide in-house experimental support for EPA's Shawnee Test Facility at Paducah, Kentucky; (2) compare lime and limestone as scrubber feeds for non-regenerable systems; (3) define operating variables and process chemistry affecting reliability; (4) improve utilization of limestone; (5) optimize performance in terms of SO_2 scrubbing efficiency and additive utilization; (6) evaluate merit of advanced concepts and process improvements for further study in larger prototype units.

Approach: Two 9-inch diameter TCA scrubbers are operated on a 24-hr. basis. Each set-up includes all components of a complete closed-loop system. They can be operated with or without flyash and chlorides and at varying inlet SO_2 concentrations. Hold tank and tower designs are variable.

Current Plans and Progress: Principal process parameters affecting operation in the unsaturated mode have been defined. Work in this area is continuing toward the objective of totally scale-free operation. Systematic comparison of hold tank designs have shown that high utilization of limestone can be obtained concurrently with high SO_2 removal efficiency. Work in this area is continuing toward the objective of a system that yields fully-oxidized waste sludge. Several methods of carrying out the oxidation step are being investigated. Future work will evaluate different types of lime/limestone additives and methods of controlling stoichiometry and maximizing SO_2 removal efficiency.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A		May 7, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. A-3	PROJECT OFFICER Robert H. Borgwardt RESPONSIBLE ORGANIZATION IERL-RTP, N.C. 27711 / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$425,000	75	2	7/1/74	7/1/77

EPA Form 5760-1 (7-72) REPLACES RHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAZ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT Louisville Gas and Electric Full-Scale Scrubber Testing and Waste Disposal Program

NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - Final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Recent results from small- and large-scale EPA pilot plant tests of lime/limestone scrubbing (for SO_2 removal from power plant flue gas) have shown that under certain conditions lime/limestone systems can operate unsaturated with respect to dissolved gypsum. This operating mode has also been reported in tests of the full-scale carbide lime scrubbing system at Louisville Gas and Electric's Paddy's Run Station. This system is perhaps the most successful of its type in the U. S., possibly because of the unsaturated (in gypsum) operation, the physical design of the system, or a combination of the unsaturated operation and system design.

Louisville Gas and Electric (LG&E) has expressed a willingness to make their system available to EPA for a series of tests to increase the understanding of the system and to broaden the applicability of the system design and operation to other power plant installations.

The purpose of this program is to: (a) Characterize the performance, reliability, and chemistry of the LG&E lime scrubbing system installed at Paddy's Run Unit No. 6, (b) Perform a series of scrubbing tests to increase the understanding of the LG&E system and to broaden its applicability to other power plant SO_2 scrubbing applications. These tests will include use of commercial lime, variation in boiler load, addition of chloride (and possibly magnesium), and variation in hold tank operation, (c) Evaluate scrubber waste disposal operations through laboratory and field tests of several treatment/disposal methods, with emphasis on methods not currently offered commercially.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER	
☐ AGENCY STAFF (Intramural)	A-4	Julian W. Jones	
☒ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
☐ RESEARCH GRANT		IERL-RTP / EPA	

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$950 K	75		Feb. 76(Est.)	

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SISIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
PHS
EPA
77AAF

TITLE OF PROJECT Engineering and Analytical Support for the Louisville Gas & Electric Scrubber Testing Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

NAME AND ADDRESS OF APPLICANT INSTITUTION

Radian Corporation
P. O. Box 9948
Austin, Texas 78766

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The purpose of this project is to prepare a detailed plan for a test program designed to characterize the performance, reliability, and chemistry of the LG&E lime scrubbing system installed at Paddy's Run Unit No. 6. The project will provide engineering and analytical support necessary to successfully perform a series of the LG&E system and to broaden its applicability to other power plant SO_2 scrubbing applications. These tests will include use of commercial lime, variation in boiler load, addition of chloride (and possibly magnesium), and variation in hold tank operation. Finally, the study will characterize, using the test data, important chemical reactions taking place in various system streams and vessels; will relate these reactions to basic design and operating parameters of lime scrubbing systems so that performance of the LG&E system will be generally applicable.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR J. L. Phillips	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. A-5	PROJECT OFFICER Julian Jones RESPONSIBLE ORGANIZATION IERL-RTP / EPA

FUNDS OBLIGATED $187,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 6/06/75	ESTIMATED COMPLETION DATE 5/05/76

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)

SSIE

EPA 77AAE-05
77ABA-08

TITLE OF PROJECT Louisville Gas and Electric Full-Scale Scrubber Testing and Waste Disposal Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK -- (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Recent results from small- and large-scale EPA pilot plant tests of lime/limestone scrubbing (for SO_2 removal from power plant flue gas) have shown that under certain conditions lime/limestone systems can operate unsaturated with respect to dissolved gypsum. This operating mode has also been reported in tests of the full-scale carbide lime scrubbing system at Louisville Gas and Electric's Paddy's Run Station. This system is perhaps the most successful of its type in the U. S., possibly because of the unsaturated (in gypsum) operation, the physical design of the system, or a combination of the unsaturated operation and system design.

Louisville Gas and Electric (LG&E) has expressed a willingness to make their system available to EPA for a series of tests to increase the understanding of the system and to broaden the applicability of the system design and operation to other power plant installations.

The purpose of this program is to: (a) Characterize the performance, reliability, and chemistry of the LG&E lime scrubbing system installed at Paddy's Run Unit No. 6, (b) Perform a series of scrubbing tests to increase the understanding of the LG&E system and to broaden its applicability to other power plant SO_2 scrubbing applications. These tests will include use of commercial lime, variation in boiler load, addition of chloride (and possibly magnesium), and variation in hold tank operation, (c) Evaluate scrubber waste disposal operations through laboratory and field tests of several treatment/disposal methods, with emphasis on methods not currently offered commercially.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO. 77AAE-05
77ABA-08

PROJECT OFFICER Julian W. Jones

RESPONSIBLE ORGANIZATION IERL-RTP /EPA

FUNDS OBLIGATED AAE-500K
ABA 750 K

F.Y. 75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.

STARTING DATE Feb. 76(Est.)

ESTIMATED COMPLETION DATE

EPA Form 5760-1 (7-72) REPLACES PHS FORM 186 A [illegible] WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAZ

TITLE OF PROJECT: Experimental and Theoretical Studies of Solid Solution Formation in Lime/Limestone SO_2 Scrubbers

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

R.M. Wells, Program Manager

NAME AND ADDRESS OF APPLICANT INSTITUTION

Radian Corp.
8500 Shoal Creek Blvd.
Austin, Texas 78766

SUMMARY OF PROPOSED WORK -- (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Pilot plant studies conducted by EPA at Research Triangle Park have demonstrated that both lime and limestone scrubbers can operate unsaturated with respect to dissolved calcium sulfate, while maintaining tightly closed-loop conditions. The formation of a "solid solution" of sulfate within the precipitated calcium sulfite was identified as the mechanism responsible for sulfate purge during unsaturated operation, and thus is a critical factor for achieving unsaturated scrubbing liquor. Since scale formation cannot occur with unsaturated liquor, this mode of operation is viewed as having potential importance to the reliability problem of SO_2 scrubbers that use lime or limestone feeds. Several variables influencing solid solution formation have been identified in the pilot plant studies including oxidation rate, precipitation rate, and the concentrations of chloride and magnesium in the scrubbing liquor. Accurate quantitative correlation of the effects of these variables is needed in order to predict the conditions necessary to achieve unsaturated operation in any given situation. This task is intended to assist in meeting that goal.

The overall objectives of this task are: (a) to quantitatively define, by carefully controlled laboratory measurement, the effects of the principal variables known to influence solid solution formation, and (b) develop the theoretical framework by which these variables can be related to the operation of scrubbers in an unsaturated mode.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

	SUPPORT METHOD (Check one)	TASK NO. A-6	PROJECT OFFICER R.H. Borgwardt
	AGENCY STAFF (intramural)		
X	NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION IERL-RTP, UIPD, EETB/EPA
	RESEARCH GRANT		

FUNDS OBLIGATED $50 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. Unknown	STARTING DATE May 1975	ESTIMATED COMPLETION DATE January 1976

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0081*
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77AAZ

TITLE OF PROJECT

Double Alkali Pilot/Prototype Test

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director - Dr. Charles R. La Mantia
Contract No. 68-02-1071

NAME AND ADDRESS OF APPLICANT INSTITUTION

Arthur D. Little, Inc.
20 Acorn Park
Cambridge, Massachusetts 02140

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

In the laboratory, future work involves continued development activities on an effective limestone regeneration system in the concentrated mode. Efforts will also be devoted to characterizing the chemical and physical properties of the wastes generated in the various dual alkali modes as well as chemical fixation techniques for dual alkali solids.

The continuing pilot plant program will involve development work on the concentrated limestone mode pending completion of laboratory development efforts. In addition, three long-term, five-week (13 shifts per week) runs are planned for the most promising dual alkali modes developed in the program. These runs will probably include operations in the concentrated lime mode (CSTR), the dilute lime mode (with oxidation) and a third mode to be selected.

The one-year test program will be conducted on the 20 megawatt prototype dual alkali system supplied by CEA/ADL to Gulf Power/Southern Services, Plant Scholz. The test program will be broken into short- and longer-term test phases involving a range of operating rates and sulfur content of the coal. The main focus of the data collection and analysis will be the characterization of the process operation in terms of:

- scrubber efficiency;
- oxidation rates;
- sulfate regeneration;
- solids properties;
- sodium losses; and
- lime and other chemicals utilization.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. A-7	PROJECT OFFICER Norman Kaplan RESPONSIBLE ORGANIZATION IERL-RTP, UIPD, EETB / EPA

FUNDS OBLIGATED $488,800	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. Unknown	STARTING DATE 7 May 1973	ESTIMATED COMPLETION DATE June 1976

EPA Form 5760-1 (7-72) REPLACES HEW FORM 98 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAZ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Full-Scale Double-Alkali Flue Gas Desulfurization Demonstration

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM - Final expected June 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

As part of the demonstration program carried out under provisions of the Clean Air Act Amendments of 1970, EPA has undertaken the demonstration of several flue gas desulfurization (FGD) processes on a scale that approximates a single train of a full-scale, multi-train, commercial installation. The recently approved program for accelerated energy-related research and development within EPA includes funds for double-alkali FGD Demonstration System. It is intended that the resulting system be capable of high SO_2 removal efficiencies and produce environmentally acceptable wastes. The purpose of this effort is to provide for the demonstration of a full-scale double-alkali process having significant advantages over currently available technology.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (E.g., medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
A-8

PROJECT OFFICER
Norman Kaplan

RESPONSIBLE ORGANIZATION
IERL-RTP

FUNDS OBLIGATED
$4392 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.

STARTING DATE
May 76 (Est.)

ESTIMATED COMPLETION DATE
1/78

EPA Form 5700-1 (7-73) REPLACES PHS FORM 186 AND SIE-10A WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAZ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Double Alkali Test Program on Non-Utility Boiler

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director - Dr. Charles R. La Mantia
Contract No. 68-02-1332 (T.O. 3811)

NAME AND ADDRESS OF APPLICANT INSTITUTION
Arthur D. Little, Inc.
20 Acorn Park
Cambridge, Massachusetts 02140

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objective and Scope of Project:

This project will characterize the performance of the double alkali SO_x control system designed by General Motors (GM) and installed on their industrial boiler system at the Chevrolet/Cleveland plant. This task will be accomplished by designing and participating in a test program at the GM facility which will provide information on SO_x removal capability, process reliability, sulfate control, waste product characteristics, loss of soluble material from the system, and lime yield and utilization of other chemicals. The test program will include conduct of material balances on the overall system and its important component parts.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
A-9

PROJECT OFFICER
Norman Kaplan

RESPONSIBLE ORGANIZATION
IERL-RTP, UIPD, EETB

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$26,600	75	Unknown	Jan. 1974	Oct. 1976

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-IE 6A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0051

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SIE

EPA 77AAZ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT: Revision and Issuance of Final Report of Sulfur Oxide Throwaway Sludge Evaluation Panel (SOTSEP)

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR(S) OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

R. Murray Wells, Project Manager

NAME AND ADDRESS OF APPLICANT INSTITUTION

Radian Corporation
P.O. Box 9948
Austin, Texas 78766

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Background

EPA prepared the initial draft of Sulfur Oxide Throwaway Sludge Evaluation Panel (SOTSEP) Final Report in September 1973. A significant amount of information contained in the report, especially cost data, is currently out of date. This information should be reviewed and updated prior to formal issuance of the report. Radian Corporation provided considerable technical assistance in preparation of the initial draft of the report. In this project Radian Corporation will review and revise (update) Volume I (Executive Summary) and Volume II (Technical Discussion Supplement) of the SOTSEP Final Report.

Scope of Work

Radian Corporation shall review and revise both volumes of the SOTSEP Final Report, to insure that: (a) all information contained in the report is as current as possible and that (b) the two volumes of the report are consistent. In updating the information in the report Radian shall rely heavily on readily available information from EPA (NERC-RTP) and Radian's files.

Radian Corporation shall also revise the report according to EPA direction based on an EPA editorial review of the report.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR: R. Murray Wells

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: A-11

PROJECT OFFICER: Julian W. Jones

RESPONSIBLE ORGANIZATION: IERL-RTP, UIPD, EETB/EPA

FUNDS OBLIGATED: $21,300

F.Y.: 75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.: None

STARTING DATE: Jan. 75

ESTIMATED COMPLETION DATE: April 75

EPA Form 5700-1 (7-72) REPLACES PHS FORM 136 AND SI-SIE 1A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAZ

TITLE OF PROJECT: Application of the Chemico-Basic Magnesia Slurry SO_2 Recovery Process to a Coal Fired Boiler

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

George R. Koehler, Project Director
Dr. Asim B. Ray, Chief Chemist
Edward Dober, Process Engineer

NAME AND ADDRESS OF APPLICANT INSTITUTION

Chemico Air Pollution Control Company
One Penn Plaza
New York, New York 10001

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objective: Demonstration of the magnesia slurry SO_2 recovery process for flue gas desulfurization to a coal fired boiler.

Approach: A full scale, prototype system including a first stage particulate control scrubber and a second stage F.G.D. venturi absorber has been installed on the 195 MW coal fired No. 3 boiler at Potomac Electric Power Company's Dickerson Station. Magnesia regeneration is accomplished at a 50 TPD sulfuric acid plant with SO_2 recovery as 98% sulfuric acid.

Progress: The pre-startup and planned operational testing phase of the program have been completed successfully with 1469 hours of operation of the FGD system. Previously developed prediction equations for oil fired application are being revised to include coal fired information. The unit is presently operating and will continue until MgO remaining at the power plant has been exhausted. Based upon a consumption rate of 10 tons/day, operation should continue for another two weeks.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
None		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: h,1

PROJECT OFFICER: C.J. Chatlynne

RESPONSIBLE ORGANIZATION: IERL-RTP/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$466,371	75		21 Feb. 1975	Dec. 1975

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0051

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAZ

TITLE OF PROJECT
$MgSO_3$ Hydrate Formation Mechanism

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
Dr. Phillip Lowell, Principal Scientist

NAME AND ADDRESS OF APPLICANT INSTITUTION
Radian Corporation
8500 Shoal Creek Blvd.
Austin, Texas 78766

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objective: It has been the experience in magnesia scrubbing that the two hydrate species of $MgSO_3$ (tri- and hexa-) have been formed. Since these two species have vastly different handling characteristics, it would be an advantage to be able to design a scrubbing system to preferentially produce one of the two and thus design the handling system accordingly. Thus it is the objective to develop an understanding of the formation mechanism of the two hydrates and to recommend design or operating factors for the production of the desired crystal species.

Approach: The contractor will conduct a literature survey and will experimentally determine: (a) solubility products of the two hydrates as a function of temperature, (b) the influence of solution composition on the transition temperature of the phase change, and (c) the influence of composition and temperature on the kinetics of the phase change.

Progress: The literature survey has been completed. Construction of experimental equipment is on schedule and should be completed by the end of September.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO. 8.1

PROJECT OFFICER C.I. Chatlynne

RESPONSIBLE ORGANIZATION IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
82,500	75		7/75	2/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0051*
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77AAE

TITLE OF PROJECT

Feasibility of Producing Sulfur from $MgSO_3$

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Philip S. Lowell, Principal Scientist

NAME AND ADDRESS OF APPLICANT INSTITUTION

Radian Corporation
8500 Shoal Creek Blvd.
Austin, Texas 78766

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objective: EPA has supported two Mag-Ox scrubbing demonstration; in each case sulfuric acid was produced. One option for increasing the applicability of the process is the direct reduction/decomposition of $MgSO_3$ to elemental sulfur and MgO. The study of the feasibility of this process option is the objective of this task.

Approach: The contractor is performing a literature survey on the following topics: chemistry of the Mg/O/S system, process technology, and kinetic data. He will then perform equilibrium calculations, develop possible process arrangements, and calculate heat and material balances. Finally, kinetic calculations will be performed and recommendations made.

Progress: The literature survey and most of the equilibrium calculations have been completed. Work has just begun on developing process arrangements. Heat and material balances and kinetic calculations will soon be initiated. The final report draft is expected in November.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER C.J. Chatlynne
	AGENCY STAFF (Intramural)	B-2	
X	NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION IERL-RTP/EPA
	RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$190 K	75		April 1975	Nov. 1975

EPA Form 5760-1 (7-73) REPLACES PHS FORM 102 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0083

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAE

TITLE OF PROJECT
Test and Evaluation of the Northern Indiana Public Service Co./Wellman/Allied Demonstration Plant

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

R. C. Adams
Reginald Jordan

NAME AND ADDRESS OF APPLICANT INSTITUTION

TRW, Inc.
800 Follin Lane, SE
Vienna, Va. 22180

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

TRW, Inc. will furnish the necessary personnel, materials, services, equipment, facilities and otherwise do all things necessary for or incident to the performance of the three major tasks described below:

1. Preparation of Demonstration Test Plan - TRW Inc. will prepare and submit for approval a Demonstration Test Plan based on the preliminary plans contained in Sections 4.1, 4.2, 4.5 and 4.6 of the Work Plan Manual - Test and Evaluation Program for the NIPSCO/DAVY/ALLIED Demonstration Plant, dated 31 August 1973. The Demonstration Test Plan will include a thorough discussion of test parameters, sampling methods, instrumentation, analytical methods, schedule, manpower, costs, data collection, reduction, and presentation. Installation and checkout of test measurements equipment, which was initiated under Task 18 of Contract No. 68-02-0235, will be continued during preparation of the Demonstration Test Plan.

2. Perform Acceptance Test - TRW Inc. will obtain acceptance test measurements during the one-year demonstration operation of the WELLMAN-LORD/ALLIED system at NIPSCO. The procedures, methods, schedules, etc., will be in accordance with the approved Acceptance Test Plan prepared during Task 18 to Contract No. 68-02-0235.

3. Perform One-Year Demonstration Test - TRW Inc. will obtain test measurements during the one year demonstration operation of the WELLMAN-LORD/ALLIED system at NIPSCO. The procedures, methods, schedules, etc. will be in accordance with the approved Demonstration Test Plan prepared during Task 1 of this contract. TRW Inc. will collect, reduce and evaluate demonstration data and prepare a report which will serve as a final report for the WELLMAN-LORD Demonstration Program.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
x NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.: B-5

PROJECT OFFICER: Roger C. Christman

RESPONSIBLE ORGANIZATION: IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$500,000	75		3/03/75	9/03/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 36A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0081* PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77AAZ

TITLE OF PROJECT Technical Support to the 1MW Pilot Investigation of Ammonia Scrubbing/ABS Regeneration

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Doug Van Osdell, Chemical Engineer

NAME AND ADDRESS OF APPLICANT INSTITUTION

Research Triangle Institute
Research Triangle Park, N.C. 27711

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this project is to provide technical support to the TVA/EPA 1 MW pilot investigation of ammonia scrubbing - ammonium bisulfate regeneration at TVA's Colbert Station near Muscle Shoals, Alabama.

In achieving the technical objective, the contractor will:

(1) Maintain current information on technical developments in the pilot study.

(2) Review and evaluate proposed designs, design modifications, operational changes, test programs and schedules, and test results.

(3) Recommend design, operational, and/or test options to improve the operation/evaluation of the process.

(4) Assist in defining the significance and potential impact of specific process problems.

(5) Report on a monthly basis all findings/recommendations; submit a final report summarizing the total program.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. B-6	PROJECT OFFICER Wade H. Ponder RESPONSIBLE ORGANIZATION IERL-RTP, UIPD/PTB / EPA

FUNDS OBLIGATED $59,200	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 7/75	ESTIMATED COMPLETION DATE 1/76

EPA Form 5780-1 (7-73) REPLACES PHS FORM 186 AND SSIE 5-1 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0001

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAZ

TITLE OF PROJECT **Technologies and Equipment for Production of Reductant Gases from Materials other than Natural Gas**

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Doug Hissong
K.S. Murthy

NAME AND ADDRESS OF APPLICANT INSTITUTION

Battelle Columbus Laboratories
505 King Ave.
Columbus, OH 43201

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project involves an evaluation of the feasibility of using substances other than natural gas to accomplish the reduction of SO_2 to elemental sulfur. The intended application of this technology is to future regenerable, sulfur-producing flue gas desulfurization (FGD) installations at power plants. The alternate sources of reductants include coal, coke, and residual oil. These materials can be gasified to produce a reducing gas containing hydrogen and carbon monoxide.

The objectives of this project are:

(1) To obtain data on the detailed analysis of reductant gases from the leading coal gasifiers and to assess the impact of the various gas constituents on the overall process schemes which lead to an elemental sulfur product.

(2) To examine further the equipment requirements for the production and use of coal gas as a reductant, with particular attention to the gas clean-up requirements which follow from the accomplishment of Objective 1. Attention will be given to such auxiliary equipment as that for coal handling and sizing, ash handling, and wastewater treatment.

(3) To revise and improve earlier cost estimates for the alternate reductants based upon the results from the accomplishment of Objectives 1 and 2.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)
N.A.

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
Sept. 17, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
8-8

PROJECT OFFICER
Roger Christman

RESPONSIBLE ORGANIZATION
IERL-RTP, UIPD, PTB/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$76,000	75	Unknown	8/75	5/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 78A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
17AAZ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Advanced Flue Gas Desulfurization Demonstration

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected June 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

As part of the demonstration program carried out under provisions of the Clean Air Act Amendments of 1970, EPA has undertaken the demonstration of several flue gas desulfurization (FGD) processes on a scale that approximates a single train of a full scale, multi-train, commercial installation. The accelerated energy-related program within EPA includes funds for an advanced FGD demonstration system. It is intended that the system produce elemental sulfur as its primary product, be capable of high SO_2 removal efficiencies, and utilize a reductant material other than natural gas.

The purpose of this effort is to provide for the demonstration of an advanced flue gas desulfurization process having significant advantages over currently available technology. The system to be provided will be capable of producing elemental sulfur, be capable of high SO_2 removal efficiencies, and utilize reductants other than natural gas.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
B-9

PROJECT OFFICER
Roger C. Christman

RESPONSIBLE ORGANIZATION
IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
55785 K	75		May 76 (Est.)	

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 784 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 7 7AAZ

TITLE OF PROJECT
Assessment of the Cat-Ox Demonstration Project

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

John A. Manning, Research Specialist

NAME AND ADDRESS OF APPLICANT INSTITUTION

DOW Chemical
Freeport, Texas 77541

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this task is to assess repair/refurbishment options at the Cat-Ox installation at Illinois Power's Wood River Station and to estimate both time and funds required to return the FGD system to operating condition by implementing these options.

Flow sheets, drawings, the design manual, etc. will be reviewed to determine initial materials of construction and composition of corrosive streams at key points. Corrosion literature and experience with metallic and non-metallic materials of construction in this and similar SO_2, SO_3 and sulfuric acid environments will be reviewed. Operational procedures as they may have affected corrosion will be discussed with process supplier and process operator. Site visits and inspections utilizing non-destructive test techniques are planned to determine actual plant condition. Specific recommendations for repairs and/or replacement, including estimates of time and cost for such repairs will be made. Several different levels of repair will be included.

This 5 month task is just getting started. Contractor orientation was completed late August and initial site visit is scheduled for September 17, 1975.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER C.J. Chatlynne
	AGENCY STAFF (Intramural)		
X	NEGOTIATED CONTRACT	S-12	RESPONSIBLE ORGANIZATION IERL-RTP / EPA
	RESEARCH GRANT		

FUNDS OBLIGATED $26,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE Aug. 75	ESTIMATED COMPLETION DATE Dec. 75

EPA Form 5780-1 (7-72) REPLACES PHS FORM 186 AND SI-SIE 784 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0061

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAZ

TITLE OF PROJECT
Utility FGD Technology Status

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Manager - Timothy W. Devitt
Contract No. 68-02-1321 (T.O. 6)

NAME AND ADDRESS OF APPLICANT INSTITUTION
PEDCo Environmental Specialists, Inc.
Suite 13, Atkinson Square
Cincinnati, Ohio 45246

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this task is to provide assistance to the IERL in the collection and dissemination of information and data on the status of flue gas desulfurization in the United States.

In achieving the objective, the contractor will:

1. prepare a project work plan according to the IERL Project Management System and the Project Officer's specifications,
2. compile a list of all FGD systems installed or projected in the U.S.,
3. prepare a checklist specifying data to be obtained during plant surveys,
4. prepare an individual plant survey form,
5. develop a card file type information retrieval system making information available under key words,
6. assist IERL with the preparation of OMB clearance forms,
7. conduct surveys of existing FGD systems,
8. conduct surveys of facilities where FGD are to be installed, and
9. submit complete report of status of installed and projected FGD systems periodically.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ FEDERAL STAFF (Intramural) ☒ RESEARCH CONTRACT ☐ RESEARCH GRANT	C-1	Norman Kaplan IERL-RTP, UIPD, EETB/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$73,400	75	Unknown	Mar. 1974	Continuing Effort

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SSIE 26A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAZ

TITLE OF PROJECT

Evaluation of Relative Impact of SO_x Emissions from Utility and Non-Utility Combustion / Sources on Ambient Air Quality

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Tim Devitt, VP, PEDCo - Environmental, Inc.
Robert Stephens, Engineer, PEDCo - Environmental, Inc.
Robert Amick, Engineer, PEDCo - Environmental, Inc.

NAME AND ADDRESS OF APPLICANT INSTITUTION

PEDCo - Environmental, Inc.
Cincinnati, Ohio

SUMMARY OF PROPOSED WORK -- (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this project is to assess the relative impact of SO_x emitted from utility and non-utility combustion sources on SO_x ambient air quality.

The use of high sulfur fuels plus the large number of non-utility combustion sources serve to indicate the importance of considering SO_x emissions from these sources since they may be major contributors to SO_2 levels which exceed the NAAQS. It is the purpose of this task to assess the relative impact of SO_x emitted from utility and non-utility combustion sources on SO_x ambient air quality in order to prepare a generic model for assessment of these relative impacts. The basic approach will be to gather and analyze existing air quality and emission data from selected regions and to extrapolate these results for more extensive use. This project is related to project RPS -

SPECIFY PROFESSIONAL SCHOOL INVOLVED [illegible] N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X RESEARCH CONTRACT
RESEARCH GRANT

TASK NO.
C-4

PROJECT OFFICER
Wade H. Ponder

RESPONSIBLE ORGANIZATION
IERL-RTP, UIPD, PTB/ EPA

FUNDS OBLIGATED 550 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 4/75	ESTIMATED COMPLETION DATE 12/75

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SSIE 26A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0082

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAS

TITLE OF PROJECT

Advisory Service on Scale-Up of A.P. Control Processes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

NAME AND ADDRESS OF APPLICANT INSTITUTION

National Academy of Sciences
2101 Constitution Ave.
Washington, D. C. 20418

SUMMARY OF PROPOSED WORK — (1) Objectives (2) Approach (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The National Academy of Engineers (NAE)has previously reviewed and advised the EPA on matters relating to air pollution control processes for the control of sulfur oxides, nitrogen oxides, particulates and other emissions from stationary source by means of Ad Hoc panels which operate within the frame of the parent panel. At the EPA's request these panels review the overall National R&D effort for controlling air pollution from stationary sources to ensure that the Federal program best meets the national needs.

The purpose of this project is to provide NAE advisory services to the EPA for the assessment of current and future aspects of sulfur oxide control methods and strategies.

The study will: 1) identify sulfur oxide sources; 2) evaluate the current status of control technology, alternative strategies, economics, and process maturity; 3) assess the adequacy of the control technology data base and suggest work to fill-in the identified gaps; 4) suggest uniform estimated process costing methods; and 5) identify resources required for various rate of application of technology and strategy for control of sulfur oxides emissions from stationary combustion and industrial process sources.

The study will be conducted by the Committee on Air Quality Management of the National Research Council, Division of Engineering (Commission on Sociotechnical Systems), assisted by ad hoc panels as required to provide in-depth studies of each area of interest.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR R. W. Crozier	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: C-6

PROJECT OFFICER: R. C. Harrington

RESPONSIBLE ORGANIZATION: IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200,000	75		12/30/74	12/30/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 75X WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0051

PROJECT NO. (Do not use this space)

SIE
EPA
77AA8

TITLE OF PROJECT
Power Plant Plume and Sulfate Study in Complex Terrain

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

John L. Swift, Vice Pres./Office of Environmental Mgmt. (Project Manager)
Robert C. Koch, Sr. Research Scientist, Office of Environmental Mgmt.(Principal Invest.)
Douglas J. Pelton, Research Scientist, Office of Environmental Mgmt.(Director/Field Operations)
Paul H. Hwang, Research Scientist, Office of Environmental Mgmt. (Sr. Meteorologist)

NAME AND ADDRESS OF APPLICANT INSTITUTION
GEOMET, Incorporated
15 Firstfield Road
Gaithersburg, Md. 20760

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). (Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

1.0 Objectives: (1) Creation of reliable data describing atmospheric behavior of sulfur oxide and nitrogen oxide emitted from a specific large power plant in complex terrai (2) Appraisal of current knowledge of plume behavior under similar conditions; (3) Improvement of capabilities for predicting such behavior.

2. Approach: (1) A six-month literature survey will be conducted of current knowledge of atmospheric behavior of plumes from tall stacks in complex terrain, including conservative dispersion and sulfate transformation; plus an appraisal of the adequacy of available modeling techniques for predicting such behavior. (2) Field measurements will be conducted for a year, using fixed and mobile ground plus airborne monitoring at the 700 MW coal-fired Clinch River Power Plant in the Appalachian Mountains at Carbo, Virgini Parameters observed continuously will include meteorology; NO_x and SO_x emissions; concentrations over time and space of NO_x, SO_2, sulfates and O_3 in the plume. (3) Improved modeling techniques for describing plume behavior in complex terrain and sulfate transformation will be developed upon data and the Clinch River literature survey.

3. Progress and Plans: Work began October 31, 1975. Field measurements begin June 1976 with completion May 1977. Analyses and modeling will be completed October 1977 with Final Report in early 1978.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)
N.A.

SIGNATURE OF PRINCIPAL INVESTIGATOR
JOHN L. SWIFT
Project Manager

DATE
December 3, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
IN-HOUSE STAFF
X RESEARCH CONTRACT
RESEARCH GRANT

TASK NO.
C-7

PROJECT OFFICER
J.K. Burchand

RESPONSIBLE ORGANIZATION
EPA

FUNDS OBLIGATED
$300 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.

STARTING DATE
3/75

ESTIMATED COMPLETION DATE
8/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77ABA

TITLE OF PROJECT FGC Waste Characterization Disposal Method Evaluation, and Transfer of Technical Information

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THIS PROJECT.

Julian W. Jones, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This is a modification to existing Contract 68-02-1010, which expands the current sampling and analysis effort to include five gas cleaning waste products from 5 additional plants; this will expand the current effort from 8 plants to 13, making the program results more widely applicable. The modification also includes expansion of current physical testing efforts; a new sub-task for engineering analyses of gypsum-producing (oxidation) processes, which have recently emerged as an alternative to chemical fixation; and expansion of support for a more extensive EPA field study of FGC waste disposal at TVA's Shawnee Steam Plant. In addition, the modification includes a major new task for the review, correlction and assessment of all EPA and private industry efforts in the area of flue gas cleaning waste disposal, including participation in all EPA program coordination meetings and preparation of an annual integrated report on flue gas cleaning waste disposal technology.

Results of this new task will be reported through another new task entitled "Technology Transfer". This task will include formal briefings or presentations and assembling information for EPA's Office of Technology Transfer.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
	Jerome Rossoff	

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TAP NO. 1

PROJECT OFFICER Julian W. Jones

RESPONSIBLE ORGANIZATION IERL-RTP, UIPD, EETB/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$500 K	75	Unknown	Oct. 75 (est.)	Oct. 76

EPA Form 1780-1 (7-72) REPLACES PHS FORM 166 AND SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77ABA

TITLE OF PROJECT

An Evaluation of Alternatives for the Disposal of Flue Gas Desulfurization Sludges

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Richard R. Lunt, Project Director, Senior Consultant

NAME AND ADDRESS OF APPLICANT INSTITUTION

Arthur D. Little, Inc.
Acorn Park
Cambridge, Massachusetts 02140

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This two-phase study involves the investigation of the feasibility of the disposal of FGD sludges in mines and in the ocean.

__Technical Objectives and Scope__

__Phase I__ - Evaluation of Alternative Disposal Options

- Assess the potential environmental impact of the disposal of FGD sludges in mines and the ocean;
- Determine the regulatory restrictions regarding such disposal of FGD sludges and assess the adequacy of state and federal regulations with regard to protecting the environment;
- Determine reasonable disposal system criteria for protecting the environment and develop realistic approaches, if possible, for implementing ocean and/or mine disposal systems; and
- Assess the costs for conceptualized disposal systems, including the impact of the economics on the costs of FGD systems.

The emphasis in Phase I will be placed upon determining the feasibility of these sludge disposal options. Efforts will be primarily directed toward assessing the environmental fate and the applicability of available and developing technology in implementing disposal operations.

__Phase II__ - Verification and Demonstration of One Mine and One Ocean Disposal Alternative

The objective of Phase II is to demonstrate (or simulate) on a pilot scale, if viable, one mine and one ocean disposal alternative. In Phase II, ADL will be assisted by New England Aquarium in the simulation of the ocean alternative.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
	s/Richard R. Lunt	9/16/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (Intramural)	4	Julian W. Jones
☒ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
☐ RESEARCH GRANT		IERL-RTP, UIPD, EETB/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$250,000	75	Unknown	July 75	Feb. 78

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77ABA

TITLE OF PROJECT
Compilation of Data Base for Development of Standards/Regulation for Disposal of Flue Gas Cleaning Wastes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Curtis J. Schmidt, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The purpose of this project is to obtain existing data and evaluate its adequacy to support the development of standards/regulations for land disposal of flue gas desulfurization (FGC) sludges and to suggest new research, development, planning, and activites related to the development of standards and regulations. The work shall consist of two phases. Phase I shall consist of the establishment of criteria needed by the FGC system user to evaluate his waste disposal options, including the compilation and selection of existing or proposed regulations (e.g., for surface or ground water) which have been or could be applied to FGC waste disposal, and the evaluation of the economic and institutional impact of existing or proposed regulations. Phase II shall consist of the selection or proposal of one or more regulations which will be applied to the development of a preliminary set of guidelines for the disposal of FGC sludges. In addition, research and development needs to finalize the guidelines that will be identified. Although a limited amount of work may be conducted simultaneously on both phases, Phase I should be essentially completed before initiating Phase II.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR
Curtis J. Schmidt

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
6

PROJECT OFFICER
Donald E. Sanning

RESPONSIBLE ORGANIZATION
MERC (Cincinnati) EPA

FUNDS OBLIGATED
$150 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.
Unknown

STARTING DATE

ESTIMATED COMPLETION DATE

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77ABA

TITLE OF PROJECT
Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
P. E. Hudson, Principal Scientist

NAME AND ADDRESS OF APPLICANT INSTITUTION
Radian Corporation
P.O. Box 9948
8500 Shoal Creek Blvd.
Austin, TX 78766

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

In this effort, Radian Corporation will conduct a study on minimizing water use and wastewater discharges from coal-fired steam-electric power plants. This study will consist of six tasks: (1) Plant selection and characterization--selection of 3 or 4 specific plants for detailed analysis; collection of detailed data on make-up process, and effluent waters, plant design, operating modes, coal composition and climate for each plant. (2) Process model preparation--preparation of computer models to simulate make-up, process and effluent water streams and chemical equilibria of processes for each of the specific plants selected for detailed study. (3) Simulation of existing plant operations--verification of process computer models by comparing existing plant chemical and operating data with data predicted by the models. (4) Technical assessment of recycle/reuse options--formulation of a number of water recycle/reuse options to minimize plant water requirements and discharges for the specific plants selected for study; evaluation of at least one option (via process simulation) for each plant. (5) Cost estimates--preparation of capital and operating cost estimates for each viable water recycle/reuse option. (6) Recycle/Reuse assessment report-detailed presentation of program results, including recommendations of the recycle/reuse options to be used at each of the plants studied.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (if any)	SIGNATURE OF PRINCIPAL INVESTIGATOR P. E. Hudson	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (X one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 7	PROJECT OFFICER Fred Roberts RESPONSIBLE ORGANIZATION IERL-RTP, UIPD, EETB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND PRESENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$197,300	75	Unknown	July 75	July 76

EPA Form 1745-1 (7-72) REPLACES EPA FORM ... WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0051

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77ABA

TITLE OF PROJECT:
Lime/Limestone Scrubbing Sludge Conversion Pilot Study

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:
A.G. Sliger, Section Head, Environmental Engineering

NAME AND ADDRESS OF APPLICANT INSTITUTION
The M. W. Kellogg Company
Three Greenway Plaza East
Houston, TX 77046

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). DO NOT include confidential data. ... Smithsonian Science Information Exchange. Summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project is designed to conduct further research and development on significant process steps of Kellogg's proprietary "Kel-S" process, for which Kellogg holds two patents and plans to apply for a third. The overall Kel-S process includes limestone scrubbing and sludge oxidation steps which have already been extensively tested on a pilot scale. This program involves further processing of the sludge, specifically (1) reduction of the $CaSO_3$-$CaSO_4$ mixture to CaS using coal as the reductant, (2) dissolution of the CaS to $Ca(HS)_2$, and (3) recovery (precipitation) of the Ca as $CaCO_3$ (with simultaneous release of H_2S for potential production of elemental S). The sludge reduction step has been tested in a small batch kiln; in this program, it will be tested in a larger, continuous kiln. The dissolution and precipitation steps have been tested on a bench scale using commercially produced CaS; in this program further bench scale tests with reduced sludge, followed by pilot scale continuous tests of these steps will be conducted.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (MEDICAL, DENTAL, ETC.)

SIGNATURE OF PRINCIPAL INVESTIGATOR: A.G. Sliger

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (inhouse)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO. 8

PROJECT OFFICER: Julian W. Jones

RESPONSIBLE ORGANIZATION: IERL-RTP, UPD, EETB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$750 K	75	UNKNOWN	10/75	3/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 1SA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77ABA

TITLE OF PROJECT Instrumental Measurement of Liquid Droplet Size Distribution for Demister Evaluation

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

NAME AND ADDRESS OF APPLICANT INSTITUTION

KLD Associates, Inc.
Suite 204, 7 High St.
Huntington, N. Y. 11743

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Demister efficiency has become a major concern as SO_2 scrubbers have reached operational status due to possible penetration of sulfate material which then enters the atmosphere. Measurement techniques have not been available to directly measure demister performance. IERL-RTP developed a prototype instrument which is able to size liquid aerosols and testing of this device indicates several areas in which improvements are needed for successful application of the device to sulfate scrubbers. It is expected that completion of this effort should provide a total system capable of determining demister performance continuously. Reliability, performance, and range of the device will be increased to encompass the environment found in SO_2 slurry scrubbers/demisters. Automatic and remote monitoring systems will be devised for process control applications.

This contract will extend the use of the droplet sizing device to sulfate scrubber demister evaluation, an area of urgent concern to EPA. Proper measurement techniques will allow the selection of demister technology which could minimize or eliminate direct sulfate emissions from SO_2 scrubbers as well as provide process control of the scrubbers and demisters.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR
Hector Medecki

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
11

PROJECT OFFICER
Bruce Harris

RESPONSIBLE ORGANIZATION
IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
999,300	75		6/23/75	7/25/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77ABA-012

TITLE OF PROJECT:
Lime/Limestone Scrubbing Sludge Conversion Pilot Study

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
A.G. Sliger, Section Head, Environmental Engineering

NAME AND ADDRESS OF APPLICANT INSTITUTION
The M.W. Kellogg Company
Three Greenway Plaza East
Houston, TX 77046

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. Summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project is designed to conduct further research and development on significant process steps of Kellogg's proprietary "Kel-S" process, for which Kellogg holds two patents and plans to apply for a third. The overall Kel-S process includes limestone scrubbing and sludge oxidation steps which have already been extensively tested on a pilot scale. This program involves further processing of the sludge, specifically (1) reduction of the $CaSO_3$-$CaSO_4$ mixture to CaS using coal as the reductant, (2) dissolution of the CaS to $Ca(HS)_2$, and (3) recovery (precipitation) of the Ca as $CaCO_3$ (with simultaneous release of H_2S for potential production of elemental S). The sludge reduction step has been tested in a small batch kiln; in this program, it will be tested in a larger, continuous kiln. The dissolution and precipitation steps have been tested on a bench scale using commercially produced CaS; in this program further bench scale tests with reduced sludge, followed by pilot scale continuous tests of these steps will be conducted.

IDENTIFY INSTITUTIONAL SCHOOL INVOLVED (MEDICAL, DENTAL, ETC.)

SIGNATURE OF PRINCIPAL INVESTIGATOR
A.G. Sliger

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Inhouse)
☒ GRANT/CONTRACT
☐ OTHER (SPECIFY)

TASK NO.
77ABA-012

PROJECT OFFICER
Julian W. Jones

DIVISION / ORGANIZATION
IERL-RTP, UIPD, EETB /EPA

FUNDS ALLOCATED	F.Y.	NO. OF PROFESSIONAL STAFF YEARS OF EFFORT ASSIGNED TO PROJECT THIS F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
N/A	75	UNKNOWN		

EPA Form 5760-1 (7-72) REPLACES EPA FORM 168 AND 5760-1 WHICH MAY NOT BE USED.

Page 1 of 2

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 178-R0061

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77ABB

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Assessment, Control, and Health Effects of Indoor Air Pollution

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
Walter Steen, Co-Project Officer, IERL, EACD, APB
Doug Worf, Project Director, EMSL, OD

NAME AND ADDRESS OF APPLICANT INSTITUTION
Interim

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objectives:

A. To identify the indoor and outdoor pollution sources which affect indoor air quality.
B. To determine the relative magnitude and concentration of the pollutants from these sources in the indoor environment.
C. To assess the potential or actual health and welfare effects of these pollutants upon occupants of indoor structures.
D. To determine the impact and assess the importance of energy conservation measures (as applied to existing and new structures) upon the generation, build-up, and elimination of indoor air pollutants.
E. To identify various control techniques which could be utilized to reduce the concentration and effects of indoor air contaminants for the protection of public health and welfare.
F. To suggest basic alternative techniques which could be taken in energy conservation measures which would reduce or eliminate unacceptable levels of indoor air contaminants.

Approach:

The work to be performed under the contact is divided into three phases.

A. The first phase will include a review and assessment of published literature and ongoing research efforts.
B. The second phase will include a program of indoor and outdoor air monitoring and determination of estimates of indoor air quality through mathematical models.
C. A third phase definition of effects of specified indoor air pollutants on the health

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
1

PROJECT OFFICER
Walter Steen

RESPONSIBLE ORGANIZATION
EPA/RTP

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$300 K	75		10/75	11/75

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76F WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77ABB

TITLE OF PROJECT
Assessment, Control, and Health Effects of Indoor Air Pollution

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Walter Steen, Co-Project Officer, IERL, EACD, APB
Doug Worf, Project Director, EMSL, OD

NAME AND ADDRESS OF APPLICANT INSTITUTION

Interim

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

of exposed populations will be considered for funding at the completion of Phase II.

Current Plans:
To select a qualified contractor.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)
SIGNATURE OF PRINCIPAL INVESTIGATOR
DATE: Sept. 17, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 1

PROJECT OFFICER: Walter Steen

RESPONSIBLE ORGANIZATION: IERL-RTP, EACD, APB

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
300 K	75		10/75	11/76

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SI-SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SIE
EPA 77ABD

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Catalytic Reduction of NO_x, Pilot Plant Operations - Continuation

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Y. C. Lee, President
Jules Klire, Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION

Environics, Inc.
7424 Lorge Circle
Huntington Beach, CA 92647

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Environics, Inc., has been conducting pilot plant testing of catalytic NO_x reduction under EPA Contract #68-02-0292 dated January 4, 1973.

The original purpose of the contract was to design and construct a pilot plant and to operate it for a period of nine to twelve months under gas firing only, in order to demonstrate the commercial feasibility of the process. The pilot plant was in continuous operation from June 1973 until July 1974 except for plant shutdowns and periods of oil firing. Total operating time exceeding 2000 hours with NO_x Removal Efficiency in the 85-95% range.

Because of the projected shortage of natural gas, the success obtained during gas fired tests, and the perceived need for commercial NO_x Removal process to be compatible with oil firing, the program was redirected to allow testing on either gas fired or oil fired combustion flue gas. This continuation will allow a more extensive determination of the effect of temperature, space velocity, and other variables. Analyses will also be performed on the effluent flue gas and solids to evaluate the secondary effects of the control process. The results of this supporting laboratory activity are expected to provide the necessary information for the formulation of recommendations for possible future larger scale work.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		Sept. 17, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: A-1

PROJECT OFFICER: Roger Christman

RESPONSIBLE ORGANIZATION: IERL-RTP, UIPD, PTB

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
52,900	75	0	4/75	11/75

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 1SA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0081*
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	PROJECT NO. (Do not use this space) SSIE EPA 77ABD

TITLE OF PROJECT
NO$_x$ Control Technology Status Reports

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

L.W. Anderson, Project Manager

NAME AND ADDRESS OF APPLICANT INSTITUTION

Aerotherm Division, Acurex Corporation
485 Clyde Avenue, Mountain View, CA 94042

SUMMARY OF PROPOSED WORK -- (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Numerous technical papers and reports have been published in recent years on the subject of control of nitrogen oxides from stationary sources. The present state-of-the-art is well established and has been adequately reported in the literature. Federal New Source Performance Standards for NO$_x$ have been promulgated for a variety of equipment classes and are planned for other sources in the near future. Additionally, State and local standards for NO$_x$ are in effect for specific existing and new combustion sources.

It is important that the technical community engaged in research and development of NO$_x$ control methods, as well as those involved in standards preparation and/or enforcement, be kept informed of the status of NO$_x$ control technology developments and implementation. By providing periodic concise announcements of planned or implemented NO$_x$ control technology, the dialogue within the "NO$_x$-community" can be improved and technology transfer can be expedited.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

	SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐	AGENCY STAFF (Intramural)	4	David G. Lachapelle
☒	NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
☐	RESEARCH GRANT		IERL, EACD, CRB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$52 K Base $150 K Energy	75	1	5/75	2/76

EPA Form 5780-1 (7-73) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0031

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-AZ

TITLE OF PROJECT
Lime/Limestone and Advanced Concepts--TVA's 1-MW Pilot Plant (Colbert)

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Gerald A. Hollinden, Chemical Engineer, TVA Power Research Staff, 524 Power Building, Chattanooga, Tennessee 37401, telephone: 615/755-2771
Russell F. Robards, Chemical Engineer, TVA Power Research Staff, 524 Power Building, Chattanooga, Tennessee 37401, telephone: 615/755-2771

NAME AND ADDRESS OF APPLICANT INSTITUTION

Tennessee Valley Authority
Knoxville, Tennessee

SUMMARY OF PROPOSED WORK -- (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objectives of this study are to determine the effects of gas velocity and solid/-liquid loadings on mist eliminator performance and to determine the mechanical and chemical methods necessary to maintain continuous reliable operation. The study is to be carried out at TVA's 1-MW lime/limestone pilot plant facility located at the Colbert Power Plant. The initial mist eliminator designs are formed from a compilation of data received from previous pilot plant tests at TVA and observations of other research projects throughout the world.

Current plans are to continue testing until a reliable mist eliminator design and washing scheme are achieved.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR Russell F. Robards	DATE August 12, 1975

FOR OFFICE USE ONLY Gerald A. Hollinden

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER Gerald A. Hollinden, Russell F. Robards
	AGENCY STAFF (Intramural)	1	RESPONSIBLE ORGANIZATION Power Research Staff, TVA
X	NEGOTIATED CONTRACT		
	RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$600	1975		May 7, 1975	August 1, 1976

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA EPA-IAG-D5-E721-BA

TITLE OF PROJECT Processing Sludges From Lime/Limestone Wet Scrubbing Processes for Disposal or Recycle and Studying Disposal of Fluidized Bed Combustion Waste Products

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

James L. Crowe, TVA, 5th Power Building, Chattanooga, Tennessee 37401
telephone: 615/755-2771

NAME AND ADDRESS OF APPLICANT INSTITUTION

Tennessee Valley Authority
Chattanooga, Tennessee 37401

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objectives of this program are to define the variables in pilot plant production of fertilizer from scrubber product sludge, to study the compatibility factors involved in storage and mixing of this fertilizer material with conventional fertilizer, to analyze for trace elements and potential toxic species in this type of fertilizer, to make a marketing and production cost study of this material, to define how scrubber operation affects the characteristics of lime/limestone product sludges, and to define the characteristics of and disposal methods for fluidized bed combustion waste products.

The project has been underway for approximately two months. Current plans consist of a pilot plant run to produce one to three tons of a 6-20-0 fertilizer from spent scrubber sludge. Chemical, physical, and agronomic tests will be made on this material.

The chemical and physical characteristics of sludges produced at the TVA-EPA Shawnee scrubbing installation will be defined and correlated to the scrubber operating conditions.

Initial plans for studying fluidized bed combustion waste products consist of collecting and evaluating existing data on the chemical and physical characteristics of these waste followed by actual analysis of waste material to obtain total characterization. An evaluation will also be made of methods designed for the disposal, treatment or regeneration of this material

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR James L. Crowe	DATE August 13, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 1	PROJECT OFFICER James L. Crowe RESPONSIBLE ORGANIZATION Power Research Staff, TVA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$800 K	1975	1.25 years	May 7, 1975	September 1977

EPA Form 5700-1 (7-72) REPLACES PHS FORM 155 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

SSIE

EPA

EPA-IAG-D5-E721-BB

TITLE OF PROJECT

Characterization of Effluents from Coal Fired Utility Boilers

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. B. G. McKinney, Supervisor, Environmental Research Section, 524 Power Building, Chattanooga, Tennessee 37401, telephone: 615/755-2771

Dr. Hollis B. Flora, II, Chemical Engineer, Power Research Staff, 524 Power Building, Chattanooga, Tennessee 37401, telephone: 615/755-2771

NAME AND ADDRESS OF APPLICANT INSTITUTION

Tennessee Valley Authority
Knoxville, Tennessee 37902

SUMMARY OF PROPOSED WORK – [illegible]

The project will cover (1) characterization and quantification of chemical and physical components of coal pile drainage, (2) assessment and quantification of the chemical and physical nature of ash pond effluent after the pH of the ash pond has been adjusted to meet existing standards, (3) evaluation of an ash pond monitoring program to determine the sampling necessary to obtain reliable, representative information, (4) assessment and characterization of coal ash leachate on ground water, (5) evaluation and quantification of the chlorinated effluent in the discharge canal of a once-through cooling system, and (6) the characterization of gaseous and particulate emissions from two plants with different units, e.g., cyclone and tangential fired units.

The project will focus on determining the quantities of some trace elements in various locations in and around the power plant. The samples will be analyzed for such trace elements as mercury, cadmium, chromium, selenium, arsenic and about eight to ten other trace elements.

Current plans include starting an integrated sampling program on coal pile drainage, ash pond discharge, and chlorinated effluent by October 1975.

[illegible] N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR Hollis B. Flora, II B. G. McKinney	DATE 8/12/75

FOR OFFICE USE ONLY

X	SUPPORT METHOD [illegible]	TASK NO. 1-7	PROJECT OFFICER B. G. McKinney, Hollis B. Flora, II RESPONSIBLE ORGANIZATION Power Research Staff, TVA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$950 K	1975	3	May 1975	June 1978

EPA Form 5760-1 (7-72) REPLACES PHS FORM [illegible] WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-BO

TITLE OF PROJECT
Fly Ash Characterization and Disposal

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Shirley S. Ray, Research Analyst
Power Research Staff
504 Power Building
Chattanooga, Tennessee

NAME AND ADDRESS OF APPLICANT INSTITUTION
Tennessee Valley Authority
Knoxville, Tennessee

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The purposes of this project are to chemically and physically characterize ashes and their waste effluents and to examine fly ash handling systems, disposal and utilization methods, and treatment methods for water reuse. Mass balances around several facilities having different boiler systems and coals may be incorporated to determine the differences in ash and effluent characteristics with variation in boiler design, operation, and coal type. The scope of this project includes summarizing available information on ashes and effluents, wet and dry handling systems, disposal and utilization of fly ash, and methods of treatment for water reuse; characterizing ashes and effluents of several plants; and feasibility studies on disposal alternatives and specific ash problems.

Currently, data is being collected for the summary of available information on ashes and effluents. A detailed project workplan is being prepared for the characterization study of ashes and effluents on different plants, including the sampling program, physical characterization, and chemical analyses.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)
N/A

SIGNATURE OF PRINCIPAL INVESTIGATOR
Shirley S. Ray

DATE
8/12/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1

PROJECT OFFICER
Shirley S. Ray

RESPONSIBLE ORGANIZATION
Power Research Staff, TVA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$300 K	1975	2 years	June 1975	May 6, 1980

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-BH

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT: Energy Requirement Optimization Study of Selected Processes for Removing SO_2 from Power Plant Stack Gases

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director: A. F. Little, Project Engineer, Design Branch, Tennessee Valley Authority, Office of Agricultural and Chemical Development, Muscle Shoals, Alabama 35660 (Telephone 205-383-4631, ext. 355).

NAME AND ADDRESS OF APPLICANT INSTITUTION

Tennessee Valley Authority
Office of Agricultural and Chemical Development
Muscle Shoals, Alabama 35660

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The primary objectives of the study project are to summarize the energy requirements of selected power plant stack gas SO_2 removal processes and then prepare economic and feasibility analyses of process modifications for reducing and optimizing the energy requirements for the processes. Conceptual design and cost studies will be surveyed for energy requirement data. Also a survey will be made of the energy requirement data for any existing demonstration and commercial units. The data obtained from these surveys will be summarized and analyzed to establish a current base energy requirement level for each of the processes. Feasibility and economic evaluations will then be made of process modifications and variations for reducing and optimizing the energy requirements. Process modifications and variations to be studied will include such items as scrubber type, reheat level and type, heat recovery systems, etc.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., etc.): None

SIGNATURE OF PRINCIPAL INVESTIGATOR: A. F. Little
A. F. Little

DATE: 8/11/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Inhouse)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 1

PROJECT OFFICER: A. F. Little

RESPONSIBLE ORGANIZATION: Tennessee Valley Authority, Office of Agricultural & Chemical Development

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$50K	1975	2	May 7, 1975	April 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-BI

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT: Comparative Economics of Major Processes Being Developed for Removal of SO_2 from Power Plant Stack Gases

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director: H. L. Faucett, Supervisor, Conceptual Designs, Design Branch* (ext. 447 or 355).

Support personnel: S. V. Tomlinson, Chemical Engineer, Design Branch* (ext. 483 or 355).

NAME AND ADDRESS OF APPLICANT INSTITUTION

*Tennessee Valley Authority (Telephone 205-383-4631)
Office of Agricultural and Chemical Development
Muscle Shoals, Alabama 35660

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The primary purpose of Task I is to review recently developed processes for desulfurization of power plant stack gases; then, systematically select and evaluate those which have the greatest degree of development and which are potentially attractive both technically and economically. These evaluations will include preparation of flowsheets, material balances, and commercial layouts; definition of process equipment; estimation of process equipment costs; preparation of capital investments and operating costs; and analysis of design and economic variables for cost sensitivity.

In addition to this objective, assistance will be given to EPA in their selection of an SO_2 removal process of the regenerable, sulfur-producing type for demonstration-scale testing on a 100-MW electric power unit and an SO_2 removal process of the double-alkali type for a similar demonstration-scale installation. Comparative technology analyses and preliminary economic estimates will be prepared.

As part of the overall EPA sludge disposal program, Task II of this project will provide a design and cost study of the numerous lime-limestone scrubbing sludge disposal alternatives. The economic and technical premises for these comparisons will be established and surveys of cost studies and cost data for operating and planned commercial units will be made.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.): None

SIGNATURE OF PRINCIPAL INVESTIGATOR: H. L. Faucett

DATE: 8/11/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: I & II

PROJECT OFFICER: H. L. Faucett

RESPONSIBLE ORGANIZATION: Tennessee Valley Authority, Office of Agricultural & Chemical Development

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$300K	1975	3	May 7, 1975	June 1978

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0002

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-BJ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Byproduct Marketing

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director: Dr. J. I. Bucy, Agr. Economist, Test & Demonstration Br.* (ext. 282).
Support personnel: Dr. J. L. Nevins, Head, Systems & Planning Dev. Staff,
Test & Demonstration Branch* (ext. 784).
H. G. Walkup, Supvr., Dist. Economics Section, Test & Demonstration Branch* (ext. 783).
P. A. Corrigan, Senior Project Leader, Process Engineering Branch* (ext. 380).

NAME AND ADDRESS OF APPLICANT INSTITUTION

*Tennessee Valley Authority (Telephone 205-383-4631)
Office of Agricultural and Chemical Development
Muscle Shoals, Alabama 35660

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The purpose of this study is to (1) identify the quantities of abatement byproducts which could be produced by air pollution abatement installations at various point sources of sulfur emissions in the United States, (2) define the most economical market, distribution, and transportation systems including storage costs for abatement products, (3) determine competitive costs of existing processes which utilize elemental sulfur, (4) predict as a function of the above the possible net sales revenue for marketing strategies covering the existing sulfur market and growth markets for the abatement products, and (5) recommend the most practical byproduct for specific point sources based on the above information.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)
None

SIGNATURE OF PRINCIPAL INVESTIGATOR
J. I. Bucy

DATE
8/11/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1-3

PROJECT OFFICER
J. I. Bucy

RESPONSIBLE ORGANIZATION
Tennessee Valley Authority
Office of Agricultural & Chemical Development

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$350 K	1975	2	May 7, 1975	July 1977

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 186 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-BK

TITLE OF PROJECT: Development of Flue Gas Desulfurization Technology--Pilot-Plant Study of the Ammonia Absorption - Ammonium Bisulfate Regeneration Process

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director: T. M. Kelso, Group Supervisor, Process Engineering Branch* (ext. 539).
Support personnel: P. C. Williamson, Senior Project Leader, Process Engineering Branch* (ext. 741).

NAME AND ADDRESS OF APPLICANT INSTITUTION

*Tennessee Valley Authority (Telephone 205-383-4631)
Office of Agricultural and Chemical Development
Muscle Shoals, Alabama 35660

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Ammonia scrubbing with ammonium bisulfate regeneration has the advantage of low energy requirement compared with other recovery methods. Moreover, ammonium sulfate which is formed by unavoidable oxidation is a useful product (fertilizer). A 1-MW pilot plant is being operated to study the combination of ammonia scrubbing for SO_2 removal and ammonium bisulfate regeneration to produce ammonia for recycle and a concentrated stream of SO_2 for further processing. Separation of byproduct ammonium sulfate will be studied.

The absorption section was operated with the plume emission within acceptable limits. Release and recovery of the absorbed SO_2 has been accomplished satisfactorily in the regeneration section. An evaporator-crystallizer was installed to concentrate and crystallize the ammonium sulfate for separation. A decomposer will be installed in FY 1975 to decompose the ammonium sulfate to ammonia for recycle to the absorption section and acid ammonium bisulfate for recycle to the regeneration section. The addition of the decomposer will complete the equipment requirements for the entire closed-loop regeneration process.

IDENTIFY PROFESSIONAL [illegible] INVOLVED (Medical, Dental, etc.) None	SIGNATURE OF PRINCIPAL INVESTIGATOR TM Kelso T. M. Kelso	DATE 8/11/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER
	AGENCY STAFF (Intramural)	1	T. M. Kelso
X	NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
	RESEARCH GRANT		Tennessee Valley authority Office of Agricultural & Chemical Development

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$2000K	1975	2	May 7, 1975	December 1976

EPA Form 5760-1 (7-72) REPLACES PHS FORM 160 AND SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY	*Form Approved* *OMB No. 158-R0081*
NOTICE OF RESEARCH PROJECT	PROJECT NO. (Do not use this space) SSIE EPA
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA-IAG-D5-E721-BL

TITLE OF PROJECT Development of Flue Gas Desulfurization Technology--Shawnee Lime/Limestone Scrubbing Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director: H. W. Elder, Director, Stack Gas Emission Studies Staff* (ext. 516).
Support personnel: A. F. Little, Project Engineer, Design Branch* (ext. 355).
R. D. Jackson, Chemical Engineer, Design Branch* (ext. 348).
J. K. Metcalfe, Test Facility Supervisor, Shawnee Steam Plant, Tennessee Valley Authority, Paducah, Kentucky 42001 (Telephone 502-443-6680).

NAME AND ADDRESS OF APPLICANT INSTITUTION

*Tennessee Valley Authority (Telephone 205-383-4631)
Office of Agricultural and Chemical Development
Muscle Shoals, Alabama 35660

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). (Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Conceptual design and economic studies and pilot-plant tests indicate that limestone wet scrubbing offers good promise as an effective method of SO_2 emission control for stack gases at large coal-fired power plants. Using two 10-MW-size scrubber trains, a prototype-scale evaluation of the process is being conducted at Shawnee Steam Plant (unit 10). The project is a joint effort of TVA, EPA, and Bechtel Corporation. The project will evaluate the feasibility, effectiveness, and economics of limestone wet scrubbing for removal of SO_2 and particulates from stack gas. Tests with lime are also included. As part of this program, additional task efforts will include (1) sludge treatment/disposal studies, (2) advanced limestone testing, (3) advanced lime/dolomitic lime testing, (4) design/cost computer study, and (5) a gypsum-sludge utilization study. An updated conceptual design and cost study report is also planned.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (MEDICAL, DENTAL, ETC.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
None	H. W. Elder H. W. Elder	8/11/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (Intramural)		H. W. Elder
X NEGOTIATED CONTRACT	1	RESPONSIBLE ORGANIZATION Tennessee Valley Authority Office of Agricultural & Chemical Development
☐ RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$1501 K Base 0 Energy	1975	2	May 7, 1975	July 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-BM

TITLE OF PROJECT

Advanced Concepts SO_2 Removal Process Improvements - Bench-Scale Studies

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director: J. M. Potts, Chemical Research Supervisor, Applied Research Branch* (ext. 540).

Support personnel: J. E. Jordan, Chemical Engineer, Applied Research Branch* (ext. 550).

NAME AND ADDRESS OF APPLICANT INSTITUTION

*Tennessee Valley Authority (Telephone 205-383-4631)
Office of Agricultural and Chemical Development
Muscle Shoals, Alabama 35660

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The primary purpose of Task I is to develop and improve all aspects of a potassium scrubbing system for removing SO_2 from stack gases, absorption of SO_2, decomposition of resultant potassium pyrosulfite by pyrolysis, and reduction of pyrolysis product to enable production of elemental sulfur. A major part of the laboratory work on the absorption step has been completed and work on the other steps is under way or being planned. The purpose of Task II is to develop better methods and equipment for promoting oxidation in SO_2 recovery systems where this would be desirable. Another purpose is to develop methods for coping with inadvertent oxidation in systems where oxidation is undesirable.

A gas-liquid contact device is being designed with the idea of providing improved utilization of oxygen from air. Tests will be made to compare results with other devices to determine most favorable energy to oxidation ratios.

Exploratory tests have been made to study the selective precipitation of barium sulfate from potassium sulfate-sulfite and ammonium sulfate-sulfite solutions by addition of barium chloride or barium carbonate. Chemical analyses are being obtained.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.V.M., etc.)
None

SIGNATURE OF PRINCIPAL INVESTIGATOR
J. M. Potts

DATE
8/11/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
I & II

PROJECT OFFICER
J. M. Potts

RESPONSIBLE ORGANIZATION
Tennessee Valley Authority
Office of Agricultural & Chemical Development

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$281K	1975	2	May 7, 1975	June 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 161 AND SSIE 16A WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0051

PROJECT NO. (Do not use this space)
SSIE
EPA
77 BRV (EPA-IAG-D5-E681-BV

TITLE OF PROJECT
Pilot Plant Scrubber Test Program for the Milton R. Young Generating Station

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
Everett Sondreal, Principal Investigator, Research Supervisor, Combustion & Liquefactio
Phil Tufte, Research Chemical Engineer, Combustion & Liquefaction
Harvey Ness, Research Chemist, Combustion & Liquefaction
Willis Beckering, Research Chemist, Combustion & Liquefaction
Roy Severson, Chemical Engineer, Combustion & Liquefaction

NAME AND ADDRESS OF APPLICANT INSTITUTION
Grand Forks Energy Research Center
Box 8213, University Station
Grand Forks, ND 58202

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research [illegible] are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Grand Forks Energy Research Center has entered into a contract with two utilities and a scrubber vendor for the purpose of further investigating and demonstrating the feasibility of utilizing alkali solubilized from a lignite fly ash produced in a cyclone-fired boiler in lieu of lime alkali as the chemical agent for wet scrubbing in a 5,000 cfm pilot plant scrubber. Specific objectives of the contract are: 1) to determine sulfur dioxide reduction using only fly ash and also, varying amounts of lime alkali in conjunction with fly ash, 2) to determine the severity of corrosion and scale formation, 3) to determine the chemistry of closed loop operation, 4) to determine waste disposal problems associated with fly ash-derived soluble salts and selected trace elements leached from sludge, 5) to determine a mass balance, including selected trace elements, of all input and output materials, and 6) to evaluate the capital and operating costs of fly ash alkali wet scrubbing for 100 MW, 500 MW, and 1000 MW powerplants.

In-house research is being conducted at the Grand Forks Energy Research Center investigating two major changes in ash alkali scrubbing methods to achieve higher levels of alkali utilization from the cyclone-fired fly ash. The first modification will involve scrubbing flue gas with a low pH (below pH 3) solution and then neutralizing a sidestream of the solution with fly ash. The second modification will involve scrubbing flue gas with a mixed-salt double-alkali type solution derived from fly ash so as to optimize utilization of specific fly ashes that are high in sodium and magnesium as well as calcium.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR
Everett A. Sondreal

DATE
10-23-75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
2

PROJECT OFFICER
Everett A. Sondreal

RESPONSIBLE ORGANIZATION
ERDA/Grand Forks Energy Research Ctr., N.D

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
246 K	75		7/75	9/78

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
IAG-D5-E681-BV

TITLE OF PROJECT
Develop Flue Gas Desulfurization Technology - Alkaline Ash Scrubbing

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.
Everett Sondreal, Research Supervisor
Gordon H. Gronhovd, Director
Harvey M. Ness, Research Chemist

NAME AND ADDRESS OF APPLICANT INSTITUTION
Grand Forks Energy Research Center
U.S. ERDA, Box 8213, University Station
Grand Forks, ND 58202

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The major objectives are as part of an ongoing program on removal of SO_2 from flue gas using alkaline fly ash from low-rank Western coals to:

1. Design and construct a 5,000 acfm pilot plant at a power cooperative generating station.
2. Operate the 5,000 acfm pilot plant to obtain test data on a sufficient scale to indicate commercial feasibility.
3. Support larger scale test work with existing laboratory and 120 scfm pilot plant tests.

At present, the 5,000 ascf unit is being constructed at the test site. Tests with the small scrubber has established operational parameters for use in larger unit. Base laboratory facilities at the Grand Forks Energy Research Center are operational. A portable laboratory housed in a trailer will be used for control work at the test site.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR
Everett A. Sondreal

DATE
9/3/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
2

PROJECT OFFICER
Everett Sondreal, Research Supervisor

RESPONSIBLE ORGANIZATION
Grand Forks Energy Research Center/ERDA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$100 K	1975	1977	FY 1976	FY 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E685-DA

TITLE OF PROJECT
Powerplant Stack Gas SO_2 Scrubbing-Citrate Process

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT
Joe B. Rosenbaum, Research Director
W.A. McKinney, Research Supervisor
W.I. Nissen, Project Leader

NAME AND ADDRESS OF APPLICANT INSTITUTION
Salt Lake City Metallury Research Center
Bureau of Mines, Salt Lake City, Utah

(Supervised by Director, Metallurgy
Research, Bureau of Mines,
Washington, D.C. 20240)

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). (Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

To initiate contractural procedures for the design and construction of large-scale citrate process demonstration plant for the removal of SO_2 from the flue gas of a powerplant burning high sulfur coal. This effort will be coordinating the Environmental Protection Agency and industrial firms participating in the demonstration project.

Started Fiscal Year 1975; expected completion date Fiscal Year 1979.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., J.D., etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR
J. H. Bilbrey, Jr.

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
1-2

PROJECT OFFICER
William McKinney

RESPONSIBLE ORGANIZATION
DOI, BOM

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
Base 1100 K Energy 1000K	75		6/75	9/79

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SIE 6A WHICH MAY NOT BE USED.

DIRECT COMBUSTION

Preceding page blank

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAM

TITLE OF PROJECT
Environmental Assessment/Systems Analysis and Program Support for Fluidized-Bed Combustion

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM - Final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

As a coordinated part of the national program to develop coal-burning fluidized-bed boilers, EPA is developing necessary environmental data on the fluidized-bed combustion process, including paper studies and experimental investigations on a variety of equipment. One part of the EPA fluidized combustion program is to be overall environmental assessment and systems analysis of the fluidized-bed combustion process, conducted on a level-of-effort basis; the continually refined and updated output of this analysis will be employed to guide the remainder of the EPA program.

The environmental assessment/systems analysis will include: (a) review of existing environmental, engineering and cost data; (b) identification of important pollutants to all media and projection of attainable emission levels, including engineering assessment of emission sources within the process and of control efficiencies and costs, and including analysis of present and future environmental standards; (c) identification of missing information and design of a program to develop such information, including (in selected cases) acquisition of necessary missing data; and (d) design and execution of a source sampling and ambient monitoring program on selected existing and future fluidized-bed combustors.

IDENTIFY PROFESSION(S)/SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER D. B. Henschel
	IN-HOUSE STAFF (Intramural)	1	RESPONSIBLE ORGANIZATION IERL-RTP / EPA
X	NEGOTIATED CONTRACT		
	RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$500 K	75		Feb. 76 (Est.)	Thru 9/82

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 1-A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SSIE

EPA 77AAM

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Environmental Assessment of Disposal of Solid and Liquid Wastes from FBC

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

D.B. Henschel, IERL/ATP, Program Manager
R.A. Chapman, EPA - Cincinnati, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Laboratory and field studies will be conducted to evaluate the potential for adverse environmental impact from the disposal in various environments such as on the land, in mines or in the ocean, of solid and liquid wastes from fluidized-bed combustion processes. Laboratory investigations of physical and chemical treatment of these wastes will be required as will laboratory studies of the potential for the manufacturing of products such as concrete from these wastes.

Wastes from at least three processes will be made available to the contractor for investigation. These processes are: (1) a system that burns high sulfur coal in a fluidized bed of dolomite at 4 atmospheres pressure at 300% excess air, with no dolomite regeneration, (2) a process that burns high sulfur coal in a fluidized dolomite bed at elevated pressures at close to stoichiometric conditions, with dolomite regeneration, and (3) a process that gasifies high sulfur oil in a fluidized bed of dolomite at atmospheric pressure conditions.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Inhouse) X RESEARCH CONTRACT RESEARCH GRANT	TASK NO. 3	PROJECT OFFICER R.A. Chapman RESPONSIBLE ORGANIZATION EPA - ORD - OEMI - Cincinnati

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200 K	75		4/75	

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND CSSIE 166 WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAH

TITLE OF PROJECT

Measurements for High Temperature High Pressure Processes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

In the effort to develop efficient and environmentally acceptable energy sources, a number of processes that involve process streams operating at elevated temperatures and pressures will be evaluated and commercially demonstrated. Primary among these processes are coal gasification systems and high pressure fluidized bed combustors. In order to adequately evaluate the air pollution potential and control efficiency requirements for these processes it is necessary to make measurements in the process streams at elevated temperatures and pressures. Because of the extreme environment, several factors that do not pose significant sampling problems at lower temperatures and pressures become critical at the elevated conditions. Among these are: test crew safety, materials of construction, preventing process leaks, and damage to the process itself. For these reasons, it has become necessary to develop special measurement techniques for high temperature, high pressure applications.

The purpose of this effort is to provide for the evaluation, development, field testing and applications research of the high temperature, high pressure measurement techniques necessary to conduct environmental assessments and technology development projects in the energy and industrial processes areas. The contractor will be responsible for measurement evaluation and development; preparation of guidelindes and recommended procedures; solution of specific problems; and, assistance to all project officers and contractors in the application of procedures to specific process streams.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED IN (E.G. ...) [illegible]

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X EXTRAMURAL CONTRACT
EXTRAMURAL GRANT

TASK NO.
1

PROJECT OFFICER
William B. Kuykendal

RESPONSIBLE ORGANIZATION
IERL-RTP/EPA

FUNDS OBLIGATED (F.Y.)
$2000 K 75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.

STARTING DATE
Feb. 76 (Est.)

ESTIMATED COMPLETION DATE
Thru 12/81 unless otherwise specified

EPA Form 5760-1 (7-73) REPLACES EPA FORM 166 AND SSIE 768 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0061

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAN

TITLE OF PROJECT
Preliminary Environmental Assessment of the Fluidized-Bed Combustion Process

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Dr. Paul F. Fennelly

NAME AND ADDRESS OF APPLICANT INSTITUTION
GCA/Technology Division
Burlington Road
Bedford, Mass. 01730

SUMMARY OF PROPOSED WORK -- (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

As part of this preliminary environmental assessment of the fluidized-bed combustion process, the contractor will:

a) identify the universe of pollutants which could conceivably be emitted from fluidized-bed boilers;
b) conduct an engineering evaluation to define those which may be emitted from FBC at levels which are significant; and
c) assess control technology for significant pollutants.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.V.M., ETC.)
SIGNATURE OF PRINCIPAL INVESTIGATOR
DATE
17 Sept, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
EPA STAFF (INTRAMURAL)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TALLY NO.
1

PROJECT OFFICER
D.B Henschel

RESPONSIBLE ORGANIZATION
IERL/RTP - EACD - APB / EPA

FUNDS OBLIGATED
52000 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.
0

STARTING DATE
July 1975

ESTIMATED COMPLETION DATE
January 1976

EPA Form 1760-1 (7-72) REPLACES PHS FORM ... WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0081*
	PROJECT NO. (Do not use this space) SSIE EPA 77AAN
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	

TITLE OF PROJECT

Bench Experimental Studies in Support of the Fluidized-Bed Combustion Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. R.R. Bertrand
Dr. R.C. Hoke
Mr. M.S. Nutkis

NAME AND ADDRESS OF APPLICANT INSTITUTION

Exxon Research and Engineering Co.
Post Office Box 8
Linden, New Jersey 07036

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Bench scale experimental studies are being conducted at elevated pressure in support of the remainder of the EPA fluidized-bed combustion program. A 4-inch i.d. combustor capable of operating at pressures up to 10 atmospheres is being employed. Data are being generated to assess the environmental impact of FBC over a wide range of operating variables for a variety of coal/sorbent combinations. The results of this testing will be used to guide the test program on larger-scale experimental equipment, and to investigate specific technical questions and problem areas that are foreseen or that become apparent on larger experimental units.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 1	PROJECT OFFICER D.B. Henschel RESPONSIBLE ORGANIZATION IERL/RTP - EACD - APB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$186,629	75	1	27 June 1974	27 Sept. 1975

EPA Form 5700-1 (7-73) REPLACES PHS FORM [illegible] AND [illegible] WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0051

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAN

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Experimental and Engineering Support of the Fluidized-Bed Combustion Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

D.B. Henschel, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Engineering and generally small-scale experimental support is provided to the EPA fluidized-bed combustion program. This support study will address:

a) SO_x control utilizing a calcium based sorbent, including development of criteria for sorbent selection and optimization of sorbent performance in sorption and regeneration;
b) SO_x control utilizing alternative sorbents;
c) NO_x formation mechanisms in FBC, and means for reducing emissions;
d) particulates control requirements, and means for control;
e) trace elements control requirements, and means for control;
f) means for disposing of, or utilizing, ash and spent sorbent;
g) general engineering support as required.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., ETC.)
SIGNATURE OF PRINCIPAL INVESTIGATOR
DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO. 1

PROJECT OFFICER D.B Henschel
RESPONSIBLE ORGANIZATION IERL/RTP - EACD - APB/ EPA

FUNDS OBLIGATED $2000 K
F.Y. 75
NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.
STARTING DATE 6/71
ESTIMATED COMPLETION DATE 12/81

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAH

TITLE OF PROJECT
Miniplant Studies in Support of the Fluidized-Bed Combustion Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM - Final expected Oct., 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The purpose of this effort is to obtain the services required for continued operation of the 0.63 MW (equivalent) fluidized-bed combustion Miniplant and of the existing bench-scale experimental equipment at Exxon Research and Engineering Company. These experimental facilities, built under EPA sponsorship, would be operated in support of EPA's total fluidized-bed combustion program. The effort will include: testing of an alternative particulates control device on the Miniplant; sampling the Miniplant streams for a wide variety of potential pollutants; characterization of the Miniplant sorbent regenerator performance over a range of variables with continuous sorbent circulation between the combustor and the regenerator; and operation of the bench-scale fluidized-bed combustor and regenerator over a wide range of conditions to guide the Miniplant program and to address technical questions and problem areas. This study will play a key role in helping EPA to complete its total environmental evaluation of the fluidized-bed combustion process.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ AWARDED GRANT

TASK NO.: 1

PROJECT OFFICER: D. B. Henschel

RESPONSIBLE ORGANIZATION: IERL-RTP/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$2000 K	75		Sept. 76 (Est.)	Thru 12/81

EPA Form 5760-1 (7-72) REPLACES EPA FORM 169 AND SIE-10A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0081*
	PROJECT NO. (Do not use this space) SSIE EPA 77AAN
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	

TITLE OF PROJECT
Comprehensive Analysis of Emissions from an Atmospheric Fluidized-Bed Combustion Unit

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Mr. Herman Nack

NAME AND ADDRESS OF APPLICANT INSTITUTION
Battelle Columbus Laboratories
505 King Avenue
Columbus, Ohio 43201

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Contractor will propose an approach for comprehensive analysis of emissions from FBC units, to enable identification of the specific constituents present in the waste streams as quickly and as easily as possible when the streams include a very wide range of constituents which cannot be identified beforehand.

The Contractor will then test this approach by conducting a comprehensive analysis of emissions from an existing 6-inch i.d. atmospheric-pressure experimental unit, and will revise the approach as necessary based on the results.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 1	PROJECT OFFICER D.B. Henschel RESPONSIBLE ORGANIZATION IERL/RTP - EACD - APB / EPA

FUNDS OBLIGATED $73,950	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE Sept. 1975	ESTIMATED COMPLETION DATE March 1976

EPA Form 1700-1 (7-73) REPLACES PHS FORM 186 AND SSIE 186A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAN

TITLE OF PROJECT: Comprehensive Analysis of Emissions from the CPU-400 Fluidized-Bed Combustion Unit Burning Coal

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Mr. Kenneth E. Phillips
Mr. Harold E. Stoner
Mr. Michael A. O'Hagan

NAME AND ADDRESS OF APPLICANT INSTITUTION

Combustion Power Co., Inc.
1346 Willow Road
Menlo Park, Calif. 94025

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or [illegible] (200 words or less. Omit confidential data) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The CPU-400 Process Development Unit, built by EPA to burn municipal refuse in a pressurized fluidized bed, will be operated on coal for a brief time during the fall of 1975 under ERDA sponsorship. IERL/RTP intends to obtain samples from the outlet gas stream and the inlet and outlet solid streams during operation on coal, and to perform a comprehensive analysis using these samples and on-line measurements.

Under the initial-phase contract, Combustion Power Co. (CPC) will install the necessary sampling equipment to obtain the necessary samples. Under a separate contract (with CPC or with another organization), samples will be collected and analyses performed.

The comprehensive analysis will include consideration of all potential pollutants in appropriate streams, and will include biological testing of selected samples.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. 2	PROJECT OFFICER D.B. Henschel RESPONSIBLE ORGANIZATION IERL/RTP - EACD - APB / EPA

FUND OBLIGATED 550,670	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE June 1975	ESTIMATED COMPLETION DATE June 1976

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SSIE 2EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0081*
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	PROJECT NO. (Do not use this space) SSIE EPA 77AAN

TITLE OF PROJECT

Design and Construction of a Fluidized-Bed Coal Combustion Sampling and Analytical/ Test Rig

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

C.C. Lii, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A relatively small, flexible experimental fluidized-bed coal combustion unit will be designed, and constructed at the EPA facilities in the Research Triangle Park, North Carolina. The unit will subsequently be operated in an extended in-house test program to provide EPA with the following objectives:

1. Comprehensive analysis of emissions from fluidized-bed combustors.
2. Testing of alternative sampling and analytical procedures for fluidized-bed combustion.
3. Investigation of alternative add-on environmental control devices for fluidized combustion systems.

In this new coal utilization technology, coal is burned in a fluidized-bed of non-combustible material, usually an SO_2-control sorbent, and boiler tubes are immersed in the bed. The rapid motion of the fluidized particles at the heat transfer surfaces, together with high heat-transfer rates between gas and particles, makes the fluidized-bed a highly efficient heat-transfer medium. Also fluidized-bed boilers offer the potential for inherently low environmental impact simultaneously with reduced power costs.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., ETC.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) X AGENCY STAFF (Intramural) NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. 2	PROJECT OFFICER C.C. Lii RESPONSIBLE ORGANIZATION IERL - RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE FY'S TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$1250 K	75		6/75	6/78

EPA Form 5760-1 (7-73) REPLACES PHS FORM 186 AND SSIE 36A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAN

TITLE OF PROJECT Review of Sampling and Analysis Techniques for the Environmental Assessment of Fluidized Bed Combustors

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (I) Objectives, (II) Approach, (III) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The primary objective of the project is to provide reports of "Tentative Procedures for Environmental Assessment of ...." for each of three FBC processes. Each document will describe in detail the sampling and analytical procedures that could be employed on each identified stream and for each identified pollutant class. The processes for which the state-of-the-art will be identified include: Atmospheric pressure residual oil gasification/desulfurization; pressurized FBC of coal; and atmospheric pressure FBC of coal.

The program will review the literature and will contact knowledgeable individuals associated with the development of FBC processes to identify the influent streams, the effluent streams, and the stream conditions which will be sampled as part of an environmental assessment. This information will be utilized to recommend the preferred procedure for each FBC application, based upon current sampling/analytical technology or minor extension thereof. These recommendations will include, but not be limited to: sampling (of gases entrained aerosols, organics, fugitive emissions, and solids) and analytical procedures (for gaseous, liquid, and solid inorganic compounds; particulate, gaseous, and liquid hydrocarbons).

SPECIFY PROFESSIONAL SCIENCE INVOLVED	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

EFFORT METHOD (Check one) [illegible] X [illegible] [illegible]	TASK NO. 2	PROJECT OFFICER W.B. Kuykendal RESPONSIBLE ORGANIZATION IERL - RTP, IPD, PMB

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY APPROVED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
67,074	75	Unknown	7/29/75	1/31/76

EPA Form 3785-1 (7-73) REPLACES PHS FORM 166 AND SSIE 1A WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAN

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Effect of Experimental Scale on Emissions from Fluidized-Bed Combustion Unit

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Mr. A.C. Doumas

NAME AND ADDRESS OF APPLICANT INSTITUTION
Texas Division
Dow Chemical USA
Freeport, Texas 77541

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). (Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A paper assessment will be conducted of the effect of experimental scale on emissions from fluidized-bed combustion units. The results of this project will be employed by EPA to decide on what experimental scale environmental data must be collected to allow complete environmental characterization of the FBC process, and to permit reliable scale-up of the environmental data to the commercial scale. The Contractor will utilize his background and experience in the areas of fluidization, combustion technology and scale-up to indicate:

a) for each pollutant, in each process stream and process variation, those factors (if any) which might cause the emissions to be different at larger scale;
b) the predicted magnitude of the effect of scale for each pollutant, and the basis for predicting such an effect;
c) the reliability with which the effect can be predicted, and thus the importance of obtaining data on a larger scale; and
d) the scale on which data would be required to allow accurate prediction of emissions at commercial scale.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.V.M., etc.)
SIGNATURE OF PRINCIPAL INVESTIGATOR
DATE
17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
2

PROJECT OFFICER
D.B. Henschel

RESPONSIBLE ORGANIZATION
IERL/RTP – EACD – APB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY PROGRAMMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$52,510	75	0	August 1975	February 1975

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SSIE 165 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77 AAO

TITLE OF PROJECT
Experimental and Engineering Support of the **Fluidized Bed** Combustion Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Manager - Dr. D. L. Keairns, Mgr., Fluidized Bed Engineering Research

NAME AND ADDRESS OF APPLICANT INSTITUTION
Westinghouse Research Labs
Beulah Road
Pittsburgh, PA 15235

SUMMARY OF PROPOSED WORK - (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The contractor will provide experimental and engineering support for the multi-project EPA program to develop environmental controls for fluidized bed combustion processes. The work includes development of environmental control utilizing calcium-based SO_2 control sorbents, development of environmental control utilizing alternative sorbents for SO_2 control, investigation of NO_x emissions, control of particulate emissions, control of trace element emissions, disposition of ash and spent sorbent, and general engineering support. The contractor will conduct experimental and engineering studies. The program will extend previous work carried out by Westinghouse in all of the areas identified. The program will develop design and operating data on a variety of fluidized bed combustion concepts, identify test programs and test alternative system components, provide technical support for existing and proposed plants, and provide evaluation of test data.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (MEDICAL, DENTAL, ETC.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE Dec. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 1	PROJECT OFFICER T.U. Smith RESPONSIBLE ORGANIZATION EPA/ IERL / RTP

FUNDS OBLIGATED 950,000	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE 12/16/75	ESTIMATED COMPLETION DATE 12/09/77

EPA Form 5760-1 (7-73) REPLACES PHS FORM ... AND SSIE ... WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77 AAD

TITLE OF PROJECT
CAFB Engineering Support

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

S. L. Rakes, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

Interim

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). (Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Westinghouse will conduct engineering support tasks for the CAFB Demonstration plant on a continuing basis. The studies will be carried out in close coordination with other EPA Contractors working on the development of fluid bed residual oil gasification/desulfurization and will utilize to the maximum extent possible the information generated by other organizations. The program is divided into six tasks:

1. Sulfur Removal System: Sorbent selection, sorbent disposal, environ. impact and sulfur recovery are subtasks under the first task.
2. Alternative Concepts: Alternative sorbents, fuels, applications, processes, and alternative design and operating concepts are subtasks under this task.
3. Environmental Control Technology Evaluation and Development: Waste gas cleaning, waste water control, waste solids treatment are subtasks.
4. Environmental Impact for Off-design Conditions.
5. Multi-Media Emissions and System Evaluation.
6. Program Assistance to IERL.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sep 75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 1	PROJECT OFFICER S. L. Rakes RESPONSIBLE ORGANIZATION IERL-RTP-EACD-APB/ EPA

FUNDS OBLIGATED $500 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. Unknown	STARTING DATE 1/75	ESTIMATED COMPLETION DATE 3/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 1A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA 77AA0

TITLE OF PROJECT Demonstration of CAFB Atmospheric Gasifier for Generation of a Clean Fuel Gas from Residual Oil for Use in a Existing (or New) Combustor

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM - Final expected Jan. 76.

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

EPA has undertaken a program to develop an atmospheric pressure fluidized bed oil gasification/desulfurization process to provide clean fuel to a boiler which has culminated in the construction and operation of a one-megawatt pilot gasifier.

Preliminary conceptual designs of oil gasification/desulfurization systems for full scale power plants have been produced and evaluated, using EPA-Esso data. The concept appears technically feasible, effective in reducing SO_2, NO_x, and particulate emissions; and economically competitive with alternative sulfur control options. A working prototype of the oil gasification process installed in an existing power plant is required to demonstrate the concept of a commercially viable scale. This effort is for a second-generation design manual, a preliminary test plan, and the engineering support portion for construction and operation of a prototype plant.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
AGENCY STAFF (Intramural)	2	S.L. Rakes
X NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
RESEARCH GRANT		IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$213 K Base 0 Energy	75		Dec. 75 (Est.)	Thru 5/78

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 767 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77 AAO

TITLE OF PROJECT

IERL/Cinn. Support - Solid Waste Assessment - CAFB

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

S. L. Rakes, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

Interim

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

IERL/Cinn. - will, through a contract secured from RFP-CI 75-0190, assess the impact of solid waste generated by the CAFB process on the environment.

The tests to be conducted include laboratory analysis of the solid waste and long term leaching tests at selected locations throughout the country.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)
N/A

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE
17 Sep 75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
3A

PROJECT OFFICER
S. L. Rakes

RESPONSIBLE ORGANIZATION
IERL-RTP-EACD-AFB / EPA

FUNDS OBLIGATED
N/A

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.
Unknown

STARTING DATE
1/77

ESTIMATED COMPLETION DATE
1/78

EPA Form 5780-1 (7-73) REPLACES PHS FORM 166 AND SSIE 1EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77 AAD

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Residual Oil Disposition Status Report

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

J. Monk, Staff Scientist

NAME AND ADDRESS OF APPLICANT INSTITUTION

A. D. Little, Inc., Acorn Park, Cambridge, Mass. 02140

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objectives of this task are: (1) To determine the approximate supply of residual oil in the U. S. that is likely to be available for use as a fuel now and in the future (1985) and primary factors affecting this supply. What will be the impact of continued U. S. petroleum shortages on the supply? (2) To determine the distribution of this supply as to the geographical location (both production and use) in the U. S.; (3) To determine the present usage of the residual oil, that is, how much is burned, how much is cut back or modified before use, how much is coked, how much is used for feedstock to petrochemical processes or other non-energy uses; and (5) To project how much the supply/demand might be affected if suitable means for environmentally sound use as a fuel (without furhter processing) were available.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., J.D., ETC.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A		17 Sep 75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ AGENCY STAFF (IN-HOUSE) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	5	S. L. Rakes EPA-IERL-EACD-APB

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY SUPPORTED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
25 K	75	None	21 Aug 75	1 Dec 75

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 1EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAD

TITLE OF PROJECT Analytical Support to Include Comprehensive Analysis of Hazardous Substances in Residual Oil

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

As a coordinated part of the national program to develop environmentally sound use of residual oil, EPA is developing necessary environmental data support, including paper studies, demonstrations, monitoring studies and experimental investigations on a variety of equipment. This support effort is to provide for detailed analysis of appropriately selected residual oil samples, to include biological testing and assay of natural radionuclides and determination of trace constituents. Technical analyses include:

(a) trace constituent analysis
(b) petroleum chemistry
(c) sample acquisition
(d) chemistry of organic analysis
(e) assay of petroleum and petroleum products
(f) chemistry of inorganic analysis
(g) laboratory procedure to include identification of samples and compilation of analytical results

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)
SIGNATURE OF PRINCIPAL INVESTIGATOR
DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
6

PROJECT OFFICER
S. L. Rakes

RESPONSIBLE ORGANIZATION
IERL-RTP/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	EXPECTED COMPLETION DATE
$200 K	75		Feb. 76 (Est.)	6/76

EPA Form 5760-1 (7-72)   REPLACES PHS FORM 166 AND SIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAO

TITLE OF PROJECT Evaluation and Support Studies on Alternate Methods and Environmental Assessment for the Environmentally Sound Use of Residual Oil

FULL NAMES, DEPARTMENTS AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM - Final expected Jan. 76.

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives (2) Approach (3) Current Plans and (4) Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

EPA is developing necessary environmental data on the CAFB process. This part of the EPA program is to be an overall environmental assessment and systems analysis of the use of residual oil, conducted on a level-of-effort basis; the continually refined and updated output of this analysis will be employed to guide the remainder of the EPA program. The contractor selected for this analysis will also provide broad technical support and program assistance in this technology area.

The environmental assessment/systems analysis will include: (a) review of existing environmental, engineering and cost data; (b) identification of important pollutants to all media and projection of attainable emission levels, including engineering assessment of emission sources within the processes and of control efficiencies and costs, and including analysis of present and future environmental standards; (c) identification of missing information and design of a program to develop such information, including (in selected cases) acquisition of necessary missing data; and (d) design and execution of a source sampling, fugitive emission and/or measurement program on selected existing and future residual oil utilization and treating units.

IDENTIFY PROFESSIONAL SCHOOL [illegible]	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD [illegible]	TASK NO.	PROJECT OFFICER S.L. Rakes
[illegible]		
X [illegible]	6	RESPONSIBLE ORGANIZATION IERL-RTP/ EPA
[illegible]		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200 K	75		Dec. 75 (Est.)	Thru 6/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77 AAO

TITLE OF PROJECT

Preliminary Environmental Assessment of CAFB

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR(S) OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. A. S. Werner, Staff Scientist

NAME AND ADDRESS OF APPLICANT INSTITUTION

GCA/Technology Division, Burlington Road, Bedford, Mass. 01730

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Task 1 - Conduct a "Devil's Advocate" Preliminary Environmental Assessment of the CAFB Process.

Task 2 - Determine the tests which should be rund on the ESSO Unit.

Task 3 - Evaluate the tests made on the ESSO Unit

Task 4 - Prepare a final report with recommendation to IERL-RTP for follow up on (1) ESSO Projects, (2) Demonstration, (3) Environmental Assessment lapse

[illegible] N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sep 75

FOR OFFICE USE ONLY

	SUPPORT METHOD [illegible]	TASK NO.	PROJECT OFFICER S. L. Rakes
X	[illegible]	9	RESPONSIBLE ORGANIZATION EPA-IERL, RACD-APB

FUNDS	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
50 K	75	None	15 Aug	15 Jan 76

EPA Form 5760-1 (7-72) REPLACES [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAO

TITLE OF PROJECT

Technical Services in Air Pollution Sample Acquisition and Analysis

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Dr. Gene Burns

NAME AND ADDRESS OF APPLICANT INSTITUTION

TRW Systems Group
TRW, Incorporated
One Space Park
Redondo Beach, California 90278

SUMMARY OF PROPOSED WORK -- (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The IERL-RTP is responsible for research, development and demonstration of air pollution control technology for stationary sources of pollution. During the conduct of studies to carryout this function, non-routine situations arise which require the utilization of measurement expertise and/or facilities not available within the Laboratory.

The project will evaluate sampling procedures and sampling equipment required for the acquisition of representative samples from solid, liquid, gaseous and/or multiphase streams associated with industrial processes and/or air pollution control systems. Where specialized equipment is required, the effort shall develop specifications, fabricate the equipment, and perform laboratory and field evaluations.

The project will also evaluate analytical procedures including sample handling, storage and preparation. Physical and chemical analyses will be performed on selected samples using wet chemical or instrumental techniques such as atomic absorption; neutron activation; X-ray fluroescence; X-ray diffraction; spark source mass spectrometry; gas chromatography; infrared, ultraviolet and visible spectroscopy; liquid chromatography; optical emission spectroscopy; electron microscopy; optical, electrical or aerodynamic particle size.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 9

PROJECT OFFICER: Larry Johnson

RESPONSIBLE ORGANIZATION: IERL-RTP, IPD, PMB/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$150,893	75	Unknown	3 May 1974	3 May 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 186 AND SSIE 1A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAU

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Sampling and Analysis for Inorganic Species in Process Streams

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Mar. 76.

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

EPA's commitment to environmentally assess and to develop control technology applicable to coal gasifiers, coal liquification, chemical coal cleaning and industrial processes has created a need to evaluate the composition of process and effluent streams for an extensive number of inorganic species. Previous efforts have been directed towards the sampling and analysis of oxidized inorganic forms; e.g., SO_2, NO_x and metal oxides. Very little effort has been directed towards the evaluation and standardization of measurement techniques for reduced inorganic compounds. This effort will be directed toward the development & application of samping and analysis procedures for the complete range of inorganic species.

The purpose of this effort is to provide for the evaluation, development, field testing and applications research of the inorganic substances sampling and analytical procedures necessary to conduct environmental assessments and technology development projects in the energy and industrial processes areas. The contractor will be responsible for: measurement evaluation and development; preparation of guidelines and recommended procedures; solution of specific problems; comprehensive analysis of samples; and, assistance to project officers and contractors in the application of procedures to specific process streams.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.V.M., ETC.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
9

PROJECT OFFICER
R. M. Statnick

RESPONSIBLE ORGANIZATION
IERL-RTP / EPA

FUNDS OBLIGATED
$200 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.

STARTING DATE
Feb. 76 (Est.)

ESTIMATED COMPLETION DATE
6/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND 2-510 (66 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAP

TITLE OF PROJECT Environmental Assessment of Atmospheric Effluents from Coal Liquefaction

NAME, ADDRESS, DEPARTMENT, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Interim - final expected May 76.

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Coal combustion contributes approximately 80% of the total weight of sulfur oxide emissions from stationary source fossil fuel combustion. The annual consumption of coal in these operations is expeted to triple by the year 2000 to meet expected power requirements. However, the recognition of the hazards to human health and natural environment from the continuation of these SO_x emissions has resulted in the establishment of air quality regulations which either limit the maximum sulfur content of the fuel to be combusted or establish a limit on the quantity of SO_x which may be emitted into the atmosphere.

The purpose of this project is to provide for a detailed systems study of the developing coal liquefaction industry. This study will result in an environmental assessment of potential atmospheric emission problems which would hinder the development of needed technology for the production of clean-burning liquid fuels from coal. From this study the requirements for application of existing or development of new technology for controlling atmospheric pollution from coal liquefaction would be identified. Appropriate programs for needed development and/or demonstration of the required control technology would be established.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. 8	PROJECT OFFICER Lloyd Lorenzi, Jr. RESPONSIBLE ORGANIZATION IERL-RTP/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$465 K	75	0	Apr. 75 (Est.)	

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SI-SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAQ

TITLE OF PROJECT
Program Support in Fossil Fuel Processing and Synthetic Fuels

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Apr. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The IERL-RTP is presently conducting research into environmental assessment of process technology and environmental controls for fuel processing and synthetic fuels. The Laboratory needs increasing effort in program support and an independent appraisal of the on-going environmental assessment, control technology development and process development studies. The complexity of this technology and the need to interface with both EPA laboratories and other agency programs require effort and techniques beyond presently available capabilities.

The purpose of the proposed effort is to: (1) satisfy a continuing need for systems analysis and program support in coal processing, coal liquefaction, coal gasification and shale oil; (2) provide a viewpoint that is independent of contractors working on environmental assessment, control technology development, and process development; (3) provide assistance to EPA in reviewing and evaluating literature, reports and on-going efforts.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
- ☒ AGENCY STAFF (Intramural)
- ☐ NEGOTIATED CONTRACT
- ☐ RESEARCH GRANT

TASK NO. 1

PROJECT OFFICER
Mark J. Stutsman

RESPONSIBLE ORGANIZATION
IERL-RTP/EPA

FUNDS OBLIGATED
51.6 K Base
$200 K Energy

F.Y. 75

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.

STARTING DATE
Mar. 76 (Est.)

ESTIMATED COMPLETION DATE
Thru 7/77

EPA Form 5760-1 (9-70) REPLACES PHS FORM 166 AND SSIE (?) WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0001

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAQ

TITLE OF PROJECT Environmental Control Technology Development in Fuel Treatment, Processing and Conversion [illegible]

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Feb. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objective; (2) Approach; (3) Current Plans and/or Progress (200 words or less). (Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Both the Federal Government and private industry are currently funding research in fuel conversion with major emphasis on the conversion aspects of the technology. However, it is important that the environmental considerations of fuel conversion may be ignored or neglected.

For some pollutants adequate control technology may exist; however, these controls must be evaluated to determine their effectiveness and adequacy. For other pollutants, controls are known to be inadequate or non-existent, and in these cases controls must be improved or new ones developed. There are organisation involved in developing some of the needed control technology; however, these efforts are proving inadequate to meet the problems at hand. Also, whatever systems are developed will need a consistent approach to their evaluation which considers the total environmental problems and not those of just a single pollutant.

The goal of this project is to define, develop, evaluate and demonstrate environmentally acceptable and efficient control technologies for fuel treatment, processing and conversion systems.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 2	PROJECT OFFICER William J. Rhodes RESPONSIBLE ORGANIZATION EPA

FUNDS OBLIGATED 950K Base 8200 k Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE Jan. 76 (Est.)	ESTIMATED COMPLETION DATE

EPA Form 5700-1 (7-73) REPLACES EPA FORM IS- AND SSIE ... WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0001

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAQ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Sampling and Analysis Methods for POM & Other Organic Pollutants

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Feb. 76.

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The ability of some polycyclic and other organic material to produce cancer has been known for some time. Field studies dealing with this class of compounds as pollutants have been relatively few and usually limited in scope. Part of the reason for this has been the complexity and expense of sampling and analysis for POM. However, increased efforts in environmental assessment and technology development for stationary sources of organics will require that engineers and scientists deal with these problems, and with the need for methods development testing and applications research. Adequate and cost-effective methods for POM and other organic pollutants becomes even more imperative in light of the nature of many of the energy-related EPA projects.

The purpose of this effort is to provide for the evaluation, development, field testing and applications research of the organic substances sampling and analytical procedures necessary to conduct environmental assessments and technology development projects in the energy and industrial processes programs. The contractor will be responsible for: measurement evaluation and development; preparation of guidelines and recommended procedures; solution of specific problems; comprehensive analysis of samples; and, assistance to all project officers and contractors in the application of procedures to specific process streams.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
2

PROJECT OFFICER
L. D. Johnson

RESPONSIBLE ORGANIZATION
IERL-RTP / EPA

FUNDS OBLIGATED
$50 K Pass
$200 K Energy

F.Y.
75

$ & F.Y. OF FUTURE YEARS TENTATIVELY APPROVED BEYOND CURRENT F.Y.

STARTING DATE
Jan. 76 (Est.)

ESTIMATED COMPLETION DATE
2/76

EPA Form 5780-1 (7-72)   REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0003

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAO

TITLE OF PROJECT Control Technology Development for Fuel Conversion System Waste Utilization and Disposal

NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR(S) OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Interim - final expected Apr. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

EPA is presently conducting research into process technology and environmental controls for synthetic fuels. In order to assure development of emission controls and clean fuel processes concurrent with synthetic fuel technology, IERL-RTP needs a Control Technology Development Program which will result in controls for air, water and solid waste pollution from fuel conversion plants. Concurrent environmental assessment programs in fuel conversion and coal preparation will provide a base of information in environmental impact from which the contractor will develop controls under the proposed contract.

The purpose of the proposed contract is to identify and develop needed control technology for the treatment of solid and liquid wastes from fuel conversion processes and the preparation, storage and feeding of coal to converter systems. The program will provide to the coal conversion industry a basis for design, operating characteristics, cost estimation and comparative analysis for control systems.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (E.G., MEDICAL)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ INTRAMURAL (STAFF) PROGRAM ☒ EXTRAMURAL (CONTRACT) ☐ RESEARCH GRANT	6	Mark J. Stutsman IERL-RTP/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY APPROVED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200 K	75		Mar. 76 (Est.)	

EPA Form 5760-1 (7-73) REPLACES EPA FORM WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0051

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E681-AH

TITLE OF PROJECT: Support Studies of Pollutant and Waste Control in Fluidized-Bed Combustion/Regeneration Systems

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

William T. Harvey, Jr., ERDA, Project Director
D. Bruce Harris, EPA, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

Argonne National Laboratory
9700 South Cass Avenue - Argonne, Illinois 60439

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

(1) Objectives - to conduct the following studies

- a. sorbent performance for SO_2 control at bench scale
- b. one-step and two-step regeneration at laboratory and bench scale
- c. investigation of alternative regeneration schemes
- d. effect of pretreatment and enchancement additive for sorbents
- e. identification of alternate sorbents
- f. mathematical model for SO_2 capture and NO_x formation
- g. laboratory and bench scale studies of NO_x formation and emissions
- h. techniques for NO_x emission reduction
- i. characterize particulate emissions as functions of operating conditions
- j. assess alternate size particulate cleanup systems
- k. fate and control of trace element emissions
- l. disposal and utilization of spent sorbent

(2) Approach - all studies to be performed during schedules runs required by existing Contract No. 14-32-0001-1780 for Division of Coal Conversion and Utilization's Direct Combustion Branch.

(3) Progress consists of near completion of bench combustor studies on velocities, feed methods and baffling; on fine particulate emissions characterization and on trace element emissions characterization.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED IN R.U. (Check One) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR William T. Harvey Jr.	DATE 1-27-76

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Inhouse) ☒ [illegible] ☐ RESEARCH GRANT	TASK NO. 1-6	PROJECT OFFICER William T. Harvey RESPONSIBLE ORGANIZATION ERDA	

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY APPROVED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$500 K	75		3/76	3/77

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E761-A1

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Application of Fluidized-Bed Technology to Industrial Boilers

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Michael H. Farmer Staff Advisor Corporate Research Staff	Franklin Spooner Staff Consulting Engineer Corporate Research Staff

NAME AND ADDRESS OF APPLICANT INSTITUTION

Exxon Research and Engineering Co.
Government Research Laboratory
P.O. Box 101 Florham Park, New Jersey 07932

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objectives	Assess the potential for Industrial Conservation Determine the impact on oil and gas consumption Assess the economic impact Determine the demand Assess environmental impact Determine and define technical requirements for representative applications.
Approach	Formulate Implementation Scenarios Collect data relative to system requirements Develop estimates of demand in 1978-2000 time-frame for selected scenarios Formulate demand forecast
Current Plan	Survey Coal users Assess potential for system implementation by coal users, non coal users Examine representative potential system users based on economics

SPECIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) None	SIGNATURE OF PRINCIPAL INVESTIGATOR Michael Farmer	DATE August 27, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) [illegible] X [illegible] [illegible]	TASK NO. 1	PROJECT OFFICER William J. Murtyn RESPONSIBLE ORGANIZATION FEA

FUNDS OBLIGATED $300 K Base $71 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 2/75	ESTIMATED COMPLETION DATE 3/76

EPA Form 5700-1 (7-73) REPLACES PHS FORM 166 AND SIE 166 WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-BY

TITLE OF PROJECT Cost Comparison of Commercial Pressurized and Atmospheric Fluidized-Bed Power Plants to a Conventional Coal-Fired Power Plant with Flue Gas Desulfurization

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

John T. Reese, Chemical Engineer
Power Research Staff
503 Power Building
Chattanooga, TN 37401
(615) 755-[illegible]

NAME AND ADDRESS OF APPLICANT INSTITUTION

Tennessee Valley Authority
Knoxville, Tennessee

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this project is to compare the commercially projected costs of both atmospheric and pressurized fluidized-bed power plants to the costs of a conventional coal-fired steam power plant utilizing flue gas desulfurization.

The approach includes: (1) establishment of design basis for comparison of each power plant; (2) development of conceptual design and cost estimates for each power plant; (3) comparison of total costs for each plant concept. NASA-ECAS results will provide conceptual design and cost estimates for the fluid-bed cases.

Current plans include: (1) development of level of detail required for cost estimates; (2) identification of major system components for each concept; (3) definition of flue gas scrubber design criteria.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR John T Reese	DATE 8/13/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Circle one)		TASK NO.	PROJECT OFFICER John T. Reese
	AGENCY STAFF (Intramural)	3	RESPONSIBLE ORGANIZATION Power Research Staff, TVA
X	NEGOTIATED CONTRACT		
	RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
150 K	1975	1	June 1975	November 1976

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

SYNTHETIC FUELS

Preceding page blank

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAP

TITLE OF PROJECT
Program Support for Synthetic Fuels

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

David Jones - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION
Radian Corporation
8500 Shoal Creek Blvd.
Austin, Texas

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this project is to examine and define the methods required for the measurement and prediction of the environmental impacts of fuel extraction, processing, and utilization on air quality, water quality, and land use. Coal and oil shale are the two fuels of interest in this program.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. 1	PROJECT OFFICER W.J. Rhodes RESPONSIBLE ORGANIZATION IERL-RTP, EACD, FPB/ EPA

FUNDS OBLIGATED $42,700	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. 1	STARTING DATE Jan. 1975	ESTIMATED COMPLETION DATE Dec. 1975

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76F WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

77AAP

TITLE OF PROJECT
Environmental Symposium on Synthetic Fuels

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Frank Ayer - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION
Research Triangle Institute
P.O. Box 12194
Research Triangle Park, North Carolina 27709

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Contractor shall perform all the following subtasks toward setting-up, running and reporting on a conference for about 300 people for about 3-1/2 days.

1. Work in conjunction with EPA in determining conference site/location.
2. Prepare and send out invitations for papers (using EPA suggested topics and people).
3. Prepare, print and send out agenda (agenda to be based on similar symposium held in May 1974).
4. Prepare and send out invitations to attendees.
5. Conduct all correspondence with speakers and attendees.
6. Perform all registration requirements such as name tags, attendee list and substitutions, programs, etc.
7. Obtain paper pre-prints and distribute.
8. Coordinate and assist in lodging and transportation but prime responsibility belongs to the individuals. (Payments for lodging and transportation are attendees responsibility.)
9. Contractor will identify audio visual equipment requirements.
10. Actual operation and coordination of all conference activities (requires contractor personnel on-site during conference). This includes operation of audio visual equipment.
11. Post-conference coordination of all papers and non-technical editing of papers and discussions so that they are in suitable form for publication as a symposium proceedings. A reproducible master copy of this is required.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER W.J. Rhodes
☐	AGENCY STAFF (Intramural)	1	RESPONSIBLE ORGANIZATION IERL-RTP, EACD, FPB/EPA
☒	NEGOTIATED CONTRACT		
☐	RESEARCH GRANT		

AMOUNT OBLIGATED 551 K Base 6255 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE May 1975	ESTIMATED COMPLETION DATE Jan. 1976

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAP

TITLE OF PROJECT
Environmental Evaluations of Synthetic Fuels

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

John Cleland - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION
Research Triangle Institute
P.O. Box 12194
Research Triangle Park, North Carolina 27709

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Contractor shall perform the following subtasks:

1. Physical and chemical coal cleaning documentation (literature studies, etc.)
2. Survey and evaluation of specific pollutants from clean fuels processes
3. Reporting and presentations in the area of coal characterization
4. Computer processing of coal data
5. Synthetic fuel related pollutant studies; general program support

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1575

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO. 1

PROJECT OFFICER
M.J. Stutsman

RESPONSIBLE ORGANIZATION
IERL-RTP, EACD, FPB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$43,800	75	1	11 Aug. 1975	Feb. 1976

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
(OMB No. [illegible])

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

DATE

[illegible] 77AAP

TITLE OF PROJECT
Environmental Assessment of Low BTU Gasification and its Utilization

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Interim - final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Both the Federal Government and private industry are currently funding research in fuel conversion with major emphasis on the conversion aspects of the technology. However, it is important that the environmental considerations of fuel conversion not be ignored or neglected.

In order that the most efficient and environmentally acceptable systems be developed, it is necessary that environmentally-related data be collected on the systems being developed now and in the near future. This will provide the basis for defining, developing and demonstrating any required environmental safeguards prior to a fuel conversion system's commercialization.

The purpose of this project is to set-up and carry out the necessary management functions for obtaining environmentally-related data on fuel conversion systems and to actually obtain the desired information through sampling and analysis.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 2

PROJECT OFFICER: William J. Rhodes

RESPONSIBLE ORGANIZATION: RTP / EPA

FUNDS OBLIGATED: $50 K Base
$755 K Energy

F.Y.: 75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.

STARTING DATE: Feb. 75 (Est.)

ESTIMATED COMPLETION DATE: 12/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SIE
EPA
77AAP

TITLE OF PROJECT
Environmental Assessment of High BTU Gasification

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - Final expected May 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Both the Federal Government and private industry are currently funding research in fuel conversion with major emphasis on the conversion aspects of the technology. However, it is important that the environmental considerations of fuel conversion not be ignored or neglected. In order that the most efficient and environmentally acceptable systems be developed, it is necessary that environmentally related data be collected on the systems being developed now and in the near future. This will provide the basis for defining, developing and demonstrating any required environmental safeguards prior to a fuel conversion system's commercialization.

The purpose of this project is to set-up and carry out the necessary functions for obtaining environmentally-related data on high Btu gasification systems, to actually obtain the desired information through sampling and analysis, and to assess these data.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 3	PROJECT OFFICER William J. Rhodes RESPONSIBLE ORGANIZATION EPA

FUNDS OBLIGATED $265 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE Apr. 76 (Est.)	ESTIMATED COMPLETION DATE 6/77

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SIE 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAP

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Input Material Characterization

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Harold Gluskoter - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION
University of Illinois (State Geological Survey)
Natural Resources Building
Urbana, Illinois 61801

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Coals are being analysed for major, minor and trace constituents using techniques developed in the first contract. Also, techniques are being refined to provide better or more applicable methods of analysis.

Future work will continue this and the contractor will be a focal point for collection and analysis of data from other sources.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO. 4

PROJECT OFFICER
W.J. Rhodes

RESPONSIBLE ORGANIZATION
IERL-RTP, EACD, FPB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$87,400	75	1	27 June 1974	June 1976

EPA Form 5700-1 (7-72) REPLACES PHS FORM 166 AND SSIE 1A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0061

PROJECT NO. (Do not use this space)

ROAP
PPB
77AAP

TITLE OF PROJECT
Mineral Matter in Coal

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Harold J. Gluskoter, Geologist

NAME AND ADDRESS OF APPLICANT INSTITUTION
Univ. of Illinois - State Geological Survey
Natural Resources Bldg.
Urbana, Ill. 61801

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Data are needed to determine the fate of the potentially hazardous trace components of coal during cleaning operations, during conversion operations such as gasification, and during direct combustion. From this, more effective environmental controls may be developed to limit the quantities and effects of these emissions.

This study is concerned with the determination of the distribution of inorganic constituents in coal. The objective is to identify the mineralogical occurrence of potentially hazardous inorganic (trace metals) constituents in the coal. The methods to be employed include, but are not limited to, low temperature ashing, x-ray fluorescence, atomic absorption, scanning electron microscope, neutron activation analysis, etc.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☐ NEGOTIATED CONTRACT
☒ RESEARCH GRANT

TASK NO.: 5

PROJECT OFFICER: William J. Rhodes

RESPONSIBLE ORGANIZATION: IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$150 K	75		9/15/75	01/14/76

EPA Form 5700-1 (7-73) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0051

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAP

TITLE OF PROJECT
Shale Oil Environmental Assessment and Data Acquisition

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

L.C. Neal - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION

TRW Transportation and Environmental Operations
One Space Park
Redondo Beach, California 90278

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The major objectives of this project include the acquisition of the necessary background data on the principal industrial shale recovery process and U.S. shale resources; a comparative assessment of their environmental acceptability and the evaluation of technologies available for the control of air, water, and solid waste emissions.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 7

PROJECT OFFICER: L. Lorenzi, Jr.

RESPONSIBLE ORGANIZATION: IERL-RTP, EACD, FPB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$260,000	75	3	20 May 1975	May 1978

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SI-SIE 7EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0001

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAP

TITLE OF PROJECT
Preparation of Environmental Assessment Procedures

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Gene Burns

NAME AND ADDRESS OF APPLICANT INSTITUTION
TRW Systems Group
TRW, Incorporated
One Space Park
Redondo Beach, California 90278

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will identify the sampling and the analysis state-of-the-art for Coal Liquefaction. The state-of-the-art document will include R/D needs, literature review, sampling and analysis procedures utilized, etc. The work will identify the streams and the stream component types (particulate, organic, liquid, etc.) which will require sampling. Once the streams have been identified, the average physical parameters of the stream will be identified. The physical characteristics include flow, temperature, pressure, etc. The output will identify appropriate sampling schemes and suggest appropriate analytical schemes to perform an environmental assessment of coal liquefaction processes.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER R.M. Statnick	
	AGENCY STAFF (Intramural)	9		
X	NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION IERL-RTP, IPD, PMB / EPA	
	RESEARCH GRANT			

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$49,792	75	Unknown	6/12/75	12/12/75

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SI-SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY NOTICE OF RESEARCH PROJECT	Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77AAP

TITLE OF PROJECT

Development of Environmental Assessment Test Strategies

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Dr. Gene Burns

NAME AND ADDRESS OF APPLICANT INSTITUTION

TRW Systems Group
One Space Park
Redondo Beach, California 90278

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will develop strategies to perform Environmental Assessments of a Lurgi based coal gasification process and a coal-fired utility boiler equipped with a limestone wet scrubber. The environmental assessment strategy will be directed toward the identification of the potential environmental impact of all the influent and effluent streams associated with the two processes identified above. The testing strategy will develop a matrix of sampling and analytical options which would be suitable for a reiterative assessment of the potential environmental impact of air, solid and liquid streams. Factors affecting the potential testing strategies shall include: stream volumetric flow, pollutant concentrations, potential pollutants which could exist in the stream, and maximum pollutant concentrations anticipated in the receiving media.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR		DATE 17 Sept. 1975
FOR OFFICE USE ONLY				
SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 9	PROJECT OFFICER Robert Statnick RESPONSIBLE ORGANIZATION IERL-RTP, IPD, PMB / EPA		
FUNDS OBLIGATED $700 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSIGNED BEYOND CURRENT F.Y. unknown	STARTING DATE 1 June 1975	ESTIMATED COMPLETION DATE 31 October 1975

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

77AAP

TITLE OF PROJECT

Environmental Evaluation of Fossil Fuel Conversion Processes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR(S) OR PROJECT DIRECTOR(S) AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

W.J. Rhodes, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK — [illegible]

For coal gasification and liquefaction, the operations of start-up, shutdown, process disruptions, maintenance, and chemical material replacement are non-steady state situations that have unique potential pollution problems. These situations shall be investigated and described. The information reported shall include:

1. each process area or type of equipment affected
2. a general description of each operation
3. the likelihood, frequency and duration of occurence
4. the location of pollution source
5. the potential pollutants
6. estimate of pollutant quantities
7. possible control mechanisms and effectiveness.

The information reported shall be nonprocess specific; however, where information is readily available for specific processes, it shall also be included.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED [illegible]	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N.A.		17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER
	[illegible] CONTRACT [illegible]	9	W.J. Rhodes
X	NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
	RESEARCH GRANT		IERL-RTP, EACD, FPB / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$300 K	75		3/75	

EPA Form 5760-1 (7-72) REPLACES PHS FORM [illegible] AND SSIE [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R[illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77AAP

TITLE OF PROJECT **Water Conservation and Pollution Control Alternatives in Coal Gasification and Liquefaction**

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Ronald F. Probstein - Project Director

NAME AND ADDRESS OF APPLICANT INSTITUTION

Water Purification Associates
238 Main Street
Cambridge, Massachusetts 02142

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objectives of this project are to: (1) quantify and qualify the water requirements for coal conversion processes, (2) examine advanced water/wastewater treatment concepts to minimize water requirements and pollution potential, and (3) evaluate the feasibility of non-evaporative cooling systems. The study will be conducted in two phases. The first will be an overview of coal gasification and liquefaction processes and their relationship to water consumption and liquid waste generation. The second phase will involve detailed, site-specific studies for selected processes.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical School, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 11	PROJECT OFFICER W.J. Rhodes RESPONSIBLE ORGANIZATION IERL-RTP, EACD, FPB / EPA

FUNDS OBLIGATED $75,000	F.Y. 76	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. 2	STARTING DATE June 1975	ESTIMATED COMPLETION DATE June 1977

EPA Form 5700-1 (7-72) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
77ABC-02
77AAP-11, 77AAQ-09

TITLE OF PROJECT
Water Conservation and Pollution Control Alternatives in Coal Gasification & Liquefaction Process

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. David J. Goldstein, Principal Investigator, (617) 472-7704
Dr. Harris Gold

NAME AND ADDRESS OF APPLICANT INSTITUTION
Water Purification Associates
238 Main Street
Cambridge, MA 02142

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). [illegible] In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The purpose of the Project is to: (1) quantify and qualify water requirements; (2) examine the applicability of advanced water/wastewater treatment concepts; and (3) evaluate the feasibility of non-evaporative cooling systems for coal conversion installations. In the first phase of the study the contractor will conduct general water use and pollution control assessments for selected processes in the categories of high-Btu gasification, low-Btu gasification, and coal liquefaction. Emphasis will be placed on the process train, with plant auxiliaries and offsite facilities being addressed in a general manner. In the second phase the contractor will conduct detailed site-specific studies for one process in each of the three categories at three different sites. Two sites will be in the Northern Great Plains while the third will be in the Four Corners Region. Based on hypothetical plant configurations for specific sites the contractor will conduct technical and economic evaluations of the cooling, waste treatment, and process alternatives which may be employed for optimal use of available water and avoidance of pollution problems.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medicine, Dentistry, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 02 11 09	PROJECT OFFICER James F. Chasse (503) 752-4211 x376 RESPONSIBLE ORGANIZATION IERL/RTP/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$225 K	75	1 1/2	June 10, 1975	Dec. 10, 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0011

PROJECT NO. (Do not use this space)
SSIE
EPA
1TAAD

TITLE OF PROJECT
Effects of High Temperatures and High Pressure on Particle Collection Mechanisms

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Interim - final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK - (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A number of advanced air pollution abatement, waste disposal and energy conversion processes under development require devices for the removal of particulates from gases at high temperatures and/or high pressures. In many of these advanced processes either the technical or economic feasibility of the process is dependent upon adequate particulate clean-up. The development of high-efficiency particulate control devices for these high-temperature, high-pressure application is hindered by the lack of fundamental information on the mechanics of aerosols at high temperatures and pressures.

The objectives of this effort are to determine the effects of high temperatures and high pressures on particle collection mechanisms and to identify mechanisms that can be used for high efficiency removal of particles for high temperatures and/or high pressure gas streams. To meet these objectives the project will center around a theoretical and experimental study of the mechanics of aerosols at high temperatures and high pressures.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER Leslie E. Sparks
	AGENCY STAFF (Intramural)	2	RESPONSIBLE ORGANIZATION IER-RTP / EPA
X	NEGOTIATED CONTRACT		
	RESEARCH GRANT		

FUNDS OBLIGATED $50K Base $200 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE Feb. 76 (Est.)	ESTIMATED COMPLETION DATE 7/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAQ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Design and Construction of a Gas Cleaning Test Facility

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Apr. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

EPA is presently conducting research into process technology and environmental controls for synthetic fuels. In order to insure development of emission controls and clean fuel processes concurrent with synthetic fuel technology, the IERL-RTP will require a bench-scale pilot plant to assist in control technology development. The proposed project is a gas cleaning test facility and coal gasifier to be located at the EPA Laboratories in Research Triangle Park, N. C. A Preliminary process design for the unit has been completed and under contrast. The proposed effort will provide a bench-scale pilot plant operating under the direct control of IERL-RTP which will allow study of cleanup methods for coal gasification products, by-products and effluents. The facility will allow the Laboratory to place emphasis on the environmental aspects of coal gasification process development.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. 3	PROJECT OFFICER Mark J. Stutsman RESPONSIBLE ORGANIZATION RTP / EPA

FUNDS OBLIGATED 550 K Base (400) K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE Mar. 76 (Est.)	ESTIMATED COMPLETION DATE

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)

SSIE
NPA

77AAQ

TITLE OF PROJECT
Hot Gas Cleanup Based on Dolomite

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM - Final expected Feb. 76.

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The pressurized producer gas must be expanded from system pressure to 10 psig. This is best accomplished in an expanding turbine-generator set. The power output from this unit exceeds the power requirement to compress the air for the coal gasification step. The excess power so recovered is a net credit to the process. Continued development and further improvement of the process are required to permit the most beneficial commercial application of the process.

This task will capitalize on the findings made under the original contract, that elemental sulfur can be produced via this reaction, using the regenerator off-gas. Further investigation and experimentation are required to acquire data adequate for evaluation of the liquid phase Claus process with respect to other schemes for handling the sulfur removed from the fuel gas.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Circle one)		TASK NO.	PROJECT OFFICER S. L. Rakes
	AGENCY STAFF (Intramural)		
X	NEGOTIATED CONTRACT	4	RESPONSIBLE ORGANIZATION IERL-RTP/ EPA
	RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$100 K Base $100 K Energy	75		Jan. 76 (Est.)	

EPA Form 5100-1 (7-73) REPLACES PHS FORM 166 AND 5100-166 WHICH MAY NOT BE USED

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0083

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAQ

TITLE OF PROJECT: Development of Control Technology for Products & By-Products of Fuel Conversion/Fuel Utilization Systems

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Interim - final expected Feb. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data.
In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Effective conversion and utilization of domestic fossil fuel resources have become increasingly important in recent years in the light of the fuel supply-demand relationships in the United States. Technology for the achievement of commercial conversion facilities is being heavily supported in both the Governmental and industrial sectors. The product and by-product slates from fossil fuel conversion/utilization systems need to be examined in detail in order to establish that conversion system products and by-products will be usable both with minimal adverse environmental effects and with optimal utilization of the secondary resources produced from the conversion systems. This study would provide for such an evaluation and would additionally define effective programs for insuring the sound environmental utilization of fuel system products/by-products. Appropriate development efforts to support effective environmental utilization would be conducted.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 5	PROJECT OFFICER Lloyd Lorenzi, Jr. RESPONSIBLE ORGANIZATION RTP / EPA

FUNDS OBLIGATED $200 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE Jan. 75 (Est.)	ESTIMATED COMPLETION DATE

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND 5-3-18 (EA) WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAQ

TITLE OF PROJECT
Development of Technology for Demetallization and Denitrification of Oil

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

W.J. Rhodes, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The literature on nitrogen constituent contents of oils and removal techniques will be reviewed to determine the most realistic liquids to be used and identify possible catalyst/supports.

Catalyst/supports will be evaluated using screening tests of less than 15 days to determine which combinations deserve additional evaluation.

Follow on work will be pursued to evaluate newer methods and to increase both the scale of the work and duration of tests.

The most promising methods will be evaluated on synthetic oils obtained from liquefaction process developers.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (MEDICAL, DENTAL, ETC.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 17 Sept. 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 8	PROJECT OFFICER W.J. Rhodes RESPONSIBLE ORGANIZATION IERL-RTP, EACD, FPB / EPA

FUNDS OBLIGATED $125 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. Unknown	STARTING DATE 6/76	ESTIMATED COMPLETION DATE 6/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0031

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77ACK

TITLE OF PROJECT:
Invitro Cytotoxicity Testing of Source Assessment Samples

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Dr. Michael Waters
HERL-RTP

NAME AND ADDRESS OF APPLICANT INSTITUTION

Northrop Services, Inc.
Huntsville, Alabama

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will support other work in progress to evaluate the applicability of in-vitro cytotoxicity testing of energy and industrial samples. Laboratory tests will be conducted to determine the percent viability of the test cells and preliminary dose-response characteristics of samples collected from ten industrial and energy sources.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (medical, dental, etc.) N/A

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (X one)
EPA STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO. 1

PROJECT OFFICER
L. D. Johnson

RESPONSIBLE ORGANIZATION
IERL-RTP, IPD, PMB / EPA

FUNDS ALLOCATED $20,000

F.Y. 75

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.

STARTING DATE 7/1/75

ESTIMATED COMPLETION DATE 6/30/76

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77ACK

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Assessment of Environmental Effluents from Oil Refining

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected May 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Petroleum refineries consist of a complex of physical and chemical transformation operations. Many of the individual sources of emissions within the refinery have been identified. However, it has been reported that fugitive sources may be the principal emitters of hydrocarbons. Additionally, in the light of domestic energy problems and refinery siting problems, definition of control measures for refineries will assist in refinery site approvals, and environmental control of refinery effluents may have definite cost advantages for refinery operations. The planned project will attempt to define and quantify these areas for refinery study by providing an assessment for application of technology (new or existing) for air, solid, and water effluent control within a petroleum refining complex. The study will quantify the potential for emissions from each of the array of physical and chemical transformation. Attention will be given to "fugitive" or previously unaccounted for emissions, to operations expected to utilize heavier feedstocks and to practiced control technology.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1

PROJECT OFFICER
Kenneth Baker

RESPONSIBLE ORGANIZATION
IERL-RTP / EPA

AMOUNT OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$ 31.5 K Base $200 K Energy	75		Apr. 76(Est.)	

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77 BEZ / EPA-IAG-D5-E681-

TITLE OF PROJECT
Transport and Dispersion of Refinery Wastes in Freshwater Coastal Regions

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Wyman Harrison and Mr. Donald McCown
Environmental Scientists
Energy and Environmental Systems Division

NAME AND ADDRESS OF APPLICANT INSTITUTION

Argonne National Laboratory
Argonne, Illinois

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Dynamics of oil-fouled lake waters will be examined by tagging water and oily waste with rare earths and determining down-current concentrations of these elements in water samples subjected to neutron activation. This study will begin in waters of southern Lake Michigan.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

SIGNATURE OF PRINCIPAL INVESTIGATOR
Wyman Harrison

DATE
Aug. 29, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1

PROJECT OFFICER
William

RESPONSIBLE ORGANIZATION
Argonne National Laboratory ERDA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
75 K	75		7/75	6/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SIE FORM 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0082

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

SSIE

EPA

IAG-D5-E681-EE

TITLE OF PROJECT

"Identification of Refractory Organic Compounds in Treated Refinery Wastewater"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Wyman Harrison, Project Director
Dr. Leo Raphaelian, Principal Investigator (312) 739-7711 (x5277)
Mrs. Carol Chow, Chemist

NAME AND ADDRESS OF APPLICANT INSTITUTION

Energy and Environmental Systems Division
Argonne National Laboratory
Argonne, Illinois 60439

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

1) Characterization of refractory organics using GC/MS and LC.

2) Take composite samples of
    a) influent and effluent activated-sludge-plant streams,
    b) influent and effluent activated-carbon-column streams.

3) Extraction techniques for refractory organics completed.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., Public Hlth.)

SIGNATURE OF PRINCIPAL INVESTIGATOR
Leo R. Raphaelian

DATE
19 Jan 76

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☒ AGENCY STAFF (Intramural)
☐ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1, 1
2, 1, 2, 2

PROJECT OFFICER
Dr. J. J. Roberts

RESPONSIBLE ORGANIZATION
ERDA, Div. Env. Control Technology

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$75K	'75	1	June 1975	May 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved OMB No. 158-R0081*
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	PROJECT NO. (Do not use this space) SSIE EPA EPA-IAG-D5-E-727#5

TITLE OF PROJECT

Residential Energy Consumption Geographical Analyses

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. (301)

Douglas Harvey, VP, Hittman Assoc., Inc., Columbia,MD 21405 Tel. 730-7800
Harry M. Bernstein, Mgr. Energy Utilization Dept., (same address & tel.)
Taghi Alereza, Mech. Eng., Principal Investigator, (same address)
James E. Reed, Engineer, (same address)
Patrick Michael McCarthy, Civil Engineer (same address)

~~PRINCIPAL INVESTIGATOR~~ Name and address of institution:
HITTMAN ASSOCIATES, INC.
9190 Red Branch Road
Columbia, Maryland 21045 Tel: Area Code (301)730-7800

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Qualify the impact of selected single-family and multifamily residence modification on residential energy consumption for different geographical areas.

The study will identify the energy consumption associated with characteristic houses in each of ten geographic areas of the U.S. as well as identify the energy savings associated with each house modification.

The determinations will be made by a computer program that considers the ambient weather environment, calculates the heat gain or lost by radiation, conduction and infiltration, and gives an hourly, daily, montnly, and yearly printout of heating and cooling loads.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., ETC.) NA	SIGNATURE OF PRINCIPAL INVESTIGATOR TAGHI ALERESA	DATE

FOR OFFICE USE ONLY

	SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
	AGENCY STAFF (Intramural)	1,2,3, 4, &5	Kenneth L. Credle (OTR)
X	NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
	RESEARCH GRANT		DHUD

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$99,000 6/23/75	75	ONE	7/75	12/76

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

NUCLEAR

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0001
	PROJECT NO. (Do not use this space) SSIE EPA 77ADM
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	

TITLE OF PROJECT Evaluation of the Concentrations of Plutonium in Humans Residing Near the Rocky Flats Nuclear Test Facility

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

E.W. Bretthauer-Acting Chief of the Methods Development & Analytical Support Branch
Environmental Monitoring and Support Laboratory
P.O. Box 15027, Las Vegas, NV 89114
(702) 736-2969 Ext. 281

NAME AND ADDRESS OF APPLICANT INSTITUTION
Office of Research and Development
Environmental Protection Agency
Washington, D.C. 20460

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (150 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

(1) The objective of this study is to determine if the concentrations of plutonium in humans residing in the vicinity of the Rocky Flats Nuclear Facility are greater than plutonium concentrations in humans residing in areas not subjected to plutonium contamination other than that from global fallout.

(2) Approach.

Task 1: Collect selected tissues from 231 deceased humans and fluids from 300 living humans who have resided in one of three specified areas for at least 5 years.

Task 2: Provide plutonium analysis of selected human tissues.

Task 3: Provide plutonium analysis of urine samples and quality assurance of analytical data.

(3) Progress.

Task 1: A contract for sample collection and preparation, as well as the collection of epidemiological information, has been negotiated with the University of Colorado Medical School, Denver, CO.

Task 2: An interagency agreement for tissue analysis has been negotiated with the Air Force Technical Applications Center (AFTAC), Patrick Air Force Base, Cocoa Beach, FL.

Task 3: A contract has also been concluded with Eberline Instrument Corporation to analyze the urine samples.

The following quality assurance data will be provided: (a) Duplicate analysis of 10% of the tissue samples by AFTAC, (b) Contractural duplicate analysis of selected tissues by Eberline Instrument Corporation and LFE Environmental and (c) Analysis of quality assurance samples by all three analytical contractors.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A	E.W.	August 14, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
AGENCY STAFF (Intramural) X	01-03-02	E.W. Bretthauer (702) 736-2969 Ext. 281/ EPA Methods Development & Analytical Support Branch Monitoring Systems Research & Development Div.
NEGOTIATED CONTRACT X		
RESEARCH GRANT		

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$100K	1975	1	6/75	9/1/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 1EA WHICH MAY NOT BE USED.

Preceding page blank

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA
77ADU

TITLE OF PROJECT: Cooperate with ERDA to Reduce Adverse Environmental Effects from Uranium Mill Wastes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Mr. Donald W. Hendricks, Director
Richard Douglas
Joseph Hans
David Bernhardt

NAME AND ADDRESS OF APPLICANT INSTITUTION

Office of Radiation Programs
Las Vegas Facility
P.O. Box 15027
Las Vegas, Nevada 89114

Telephone: 702-736-2969

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The Energy Research and Development Administration, Division of Operational Safety, with the cooperation and assistance of EPA and the States involved, is undertaking an appraisal of about 17 inactive uranium ore milling sites in five Western States. The immediate objective is to provide to the Congress and the State legislatures engineering studies and cost estimates for long-term stabilization of the radioactive wastes resulting from the milling operations. The Office of Radiation Programs, through its Las Vegas Facility provides technical measurement capability for assessment of the impact of environmental radioactive contamination caused by these tailings sites. Technical reports defining the extent of contamination are being developed and will be provided to the ERDA architect-engineer for use in assessing the cost of remedial action alternatives.

Working levels of radon daughters in the environs of the mill site at Salt Lake City, Utah, have already been provided to the State of Utah and ERDA. Three technical reports on radon data and gamma surveys of inactive uranium mill sites are being prepared at this time. One report deals with radon exhalation data on three inactive uranium tailings piles to define the radon-222 source term. The second report presents ambient radon data around the Grand Junction, Colorado mill site to determine the effects of stabilization on radon levels around an inactive uranium mill tailings pile. The EPA has conducted a gamma survey around the inactive tailings piles involved in the ERDA/EPA study to determine the extent of contamination from wind and water erosion. This third report is now being compiled for distribution to interested parties.

SIGNATURE OF PRINCIPAL INVESTIGATOR: Donald W. Hendricks
Donald W. Hendricks

DATE: 9/11/75

FOR OFFICE USE ONLY

SUPPORT METHOD: X

TASK NO: 01

PROJECT OFFICER: Don Hendricks, 702-736-2969

RESPONSIBLE ORGANIZATION: Office of Radiation Programs / EPA

FUNDS ALLOCATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY FUNDED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
20,000	75	6MO	April 1974	June 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

17 AUG

TITLE OF PROJECT

Environmental Assessment of Long-Lived Radionuclides Resulting From Energy Related Developments

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Gilbert D. Potter, Chief, Exposure/Dose Assessment Branch

702-736-2969

NAME AND ADDRESS OF APPLICANT INSTITUTION

U.S. Environmental Protection Agency
Environmental Monitoring and Support Laboratory
P. O. Box 15027, Las Vegas, NV 89114

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

OBJECTIVES: To assess potential problems posed by the release of long-lived radionuclides released from nuclear fuel cycles--including extraction, fabrication, use and reprocessing.

APPROACH: Assess current state-of-the-art and select priority long-lived radionuclides for study in human food chain--soils, plants and animals (domestic and aquatic). Both laboratory and field studies are to be carried out. Field programs are to include baseline studies at selected preoperative sites for projected facilities and at operative sites for monitoring development purposes.

ACCOMPLISHMENTS: (1) A list of potential radionuclides for study has been made; (2) planning documents for studies have been prepared; (3) analytical equipment for projected studies has been procured.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.V.M., ETC.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE 8/14/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
X AGENCY STAFF (In-house)
CONTRACT
RESEARCH GRANT

TASK NO. 01 thru 05

PROJECT OFFICER Dr. Gilbert D. Potter, 702-736-2969

RESPONSIBLE ORGANIZATION EPA Monitoring Systems Research and Development Division

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$160K	75	4	5/75	6/79

EPA Form 5780-1 (7-72) REPLACES PHS FORM 166 AND SSIE 164 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **INTERIM** **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0051*
	PROJECT NO. (Do not use this space) SSIE EPA
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77ADW

TITLE OF PROJECT **Cost Risk Analysis of Control Technologies for Radionuclides Deposited on Land, Biota, Man, and Water Following a Nuclear Incident**

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project is designed to furnish data on costs and achievrble risk reductions for a wide range of protective actions applicable to radioactively contaminated lands, property, water supplies, personnel, and biota following a nuclear incident.

A baseline aggregate radiation dose to members of the general public following a nuclear incident with no decontamination control technology in effect will be calculated assuming parametric levels of radioactive contamination. The aggregate dose, person-rems, is the result of exposure through all exposure pathways as integrated over the total exposed population and is a measure of risk. Each plausible element of control technology will then be evaluated for cost and for effectiveness in dose reduction. The aggregate dose will be recalculated with the various control technologies in use. Control technology options will be arranged in hierarchical order on a cost effective basis. Finally, health effects will be calculated from the aggregate dose, and cost risk curves, health effects vs cost for a series of increasingly effective protective actions, will be plotted.

A contract to complete this project is currently under negotiation.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 01	PROJECT OFFICER **James M. Hardin 202-755-1188** RESPONSIBLE ORGANIZATION **Office of Radiation Programs, EAD / EPA**

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$150,000(Est.)	1975	?	October 1, 1975	October 1, 1977

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

INTERIM

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0061

PROJECT NO. (Do not use this space)
SSIE
EPA
77ADX

TITLE OF PROJECT: Assessment of Environmental Impacts on Air, Water, & Radioactive Waste Material from the Thorium/U-233 Fuel Cycle

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Available after contract award - about November 1975.

NAME AND ADDRESS OF APPLICANT INSTITUTION

Available after contract award - about November 1975.

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

OUTPUT SUMMARY - This project will provide a technological assessment of the Thorium/U-233 fuel cycle to determine the environmental impact from operations of these facilities as they affect air, water, & radioactive waste materials. The investigation will focus on the long-term environmental impact & cover reactor operations, transportation, fuel reprocessing, & ultimate disposal of radioactive wastes. Estimates will be provided on the amounts & forms of long-lived materials in the waste streams & will include determinations of the availability & effectiveness of control technology for removal of these radionuclides.

MAJOR MILESTONES

1. Characterizations of the fission products generated in the Thorium/U-233 fuel cycle.
2. Report on planned releases & design parameters as they affect propagation chains through the air & water environment.
3. Description of clean up capabilities & system requirement of control technologies presently proposed or potentially applicable for treating the long-lived radionuclides in the waste streams.
4. Report on economic analysis of cost of employing control technology to reduce the waste to the lowest level practicable.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR: Available November 1975

DATE: 9/12/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 01

PROJECT OFFICER: Bruce Mann

RESPONSIBLE ORGANIZATION: Office of Radiation Programs / EPA

FUNDS OBLIGATED: $100 K

F.Y.: 75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.: Two years

STARTING DATE: January 1976

ESTIMATED COMPLETION DATE: January 1977

EPA Form 5760-1 (7-73)   REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77 ADY

PREPARED FOR THE SMITHSONIAN SCIENCE INFOR- ON EXCHANGE

TITLE OF PROJECT Improving Model for Simulating Groundwater Transport of Radioactive Pollutants from Buried Low-Level Radioactive Wastes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. James F. Davis, State Geologist 518-474-5816
New York Geological Survey
State Museum and Science Service
New York State Education Department
Albany, New York 12223

NAME AND ADDRESS OF APPLICANT INSTITUTION

New York Geological Survey
State Museum and Science Service
New York State Education Department, Albany, New York 12223

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

(1) Objective Summary: Directed primarily at control of solid low-level radioactive wastes resulting from power production by nuclear reactors. Two major objectives include: (1) determining retention of radioactive and stable nuclides by fractured soil and rocks (Phase I) and (2) improving models simulating groundwater transport of radioactive pollutants after burial (Phase II).

(2) Approach: Feasibility of developing generic method for making field determination of retention of radioactive and stable nuclides by fractured soil and rock (Phase I) will be evaluated with FY 75 funds. Presuming it is feasible, major tasks under this portion of project will be (1) to determine degree of retention actually occurring under field conditions and (2) to develop a method for estimating attenuation which may be expected by fractured rock and soils.

Feasibility of developing generic method for analyzing water pathways for land burial site, including developing transfer coefficient, and estimating impact on environment of burial site and potential dose to man (Phase II) will be partially evaluated with FY 75 funds. Major tasks under this portion of project include: (1) completing determination of feasibility of analyzing water pathways, etc., discussed above and presuming these determination are feasible; (2) performing pathways analysis/dose assessment of an operating burial site under field conditions; and (3) estimating what safe limits of discharge of radioactivity from site are current plans/progress: contract let in late June. Implementation of Phases I and II in progress.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR
James F. Davis

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
XX NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
1

PROJECT OFFICER
G. Lewis Meyer

RESPONSIBLE ORGANIZATION
Office of Radiation Programs / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$75 K	75	4 years	July 1, 1975	June 30,1979

EPA Form 5780-1 (7-73) REPLACES PHS FORM 166 AND SSIE 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AD2

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
"Implementation of a Technology Assessment Methodology for Radioactive Waste Management"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Stanley Logan 505-277-2849
Assoc. Prof. of Nuclear Eng.
The University of New Mexico
Albuquerque, New Mexico 87131

NAME AND ADDRESS OF APPLICANT INSTITUTION
The University of New Mexico
Albuquerque, New Mexico 87131

SUMMARY OF PROPOSED WORK – (1) Objective, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A radioactive waste management technology assessment model is being developed to evaluate the various permanent waste disposal methods and management options, so that the long-term adequacy of provisions for burial is assured and so that the total cost of radioactive waste handling and disposal is minimised.

This model has a parallel branch for each major phase in the waste management sequence, beginning with treatment and temporary storage at the fuel reprocessing plant and commencing through transportation to a repository, repository operations, and long-term storage at the repository. The main emphasis has been on the last phase where environmental protection must be insured over a long geologic time frame. Each branch of the model includes fault tree analyses to determine probabilities and magnitudes of various potential releases of radioactive material, an environmental model for calculating transport of radionuclides through environmental pathways to man, individual and population dose and other environmental effects, and an economic model for evaluation of associated damage charges. Implementation is with a computer code AMRAW, which uses a network of transfer coefficients and receptors. AMRAW accommodates input obtained with existing environmental pathway and radiation dose codes.

Application of this technology assessment model by EPA is planned for the following uses: (1) to compare and assess future facilities proposed for high-level waste disposal, (2) to help develop the technical bases and guidelines for establishing environmental policy relative to the control of commercial alpha wastes and high-level wastes, (3) to apply information from the model to EPA's continuing effort to develop the generic ability to evaluate the environmental acceptability of presently operating and proposed fuel cycle facilities that produce, treat, store, or dispose of radioactive waste, and (4) to help develop concepts, evaluate feasibility, and establish the control technology for the long-term storage and disposal of high-level radioactive wastes.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
University of New Mexico	Stanley Logan	9/11/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.: 01

PROJECT OFFICER: Stephen H. Goldberg 201-755-4863
RESPONSIBLE ORGANIZATION: Office of Radiation Programs, Tech. Assessment Division (AW-459)

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
90	1975	1-3	Aug. 1, 1975	Sept. 15, 1976

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0061
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77ABA

TITLE OF PROJECT

Evaluation of Problems and Limitations of Ocean Dumping as a Radioactive/ Waste Management Alternative

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Robert S. Dyer, Project Officer (Phone: 755-3852)
Office of Radiation Programs (AW-460)
Environmental Protection Agency, Washington, D.C. 20460

NAME AND ADDRESS OF APPLICANT INSTITUTION

U. S. Environmental Protection Agency

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Approach: Radioactive wastes were dumped at sea under Atomic Energy Commission licensing procedures from 1946 to 1966. EPA now has specific regulatory requirements to control ocean disposal of radioactive wastes at sea under the Marine Protection Research & Sanctuaries Act of 1972 (PL 92-532). EPA has developed a program to investigate two major formerly-used U.S. radioactive waste dumping sites located off the East and West coasts at depths exceeding 2000 meters using manned and unmanned submersibles, respectively.

Objectives: The general objective of the program is to determine the fate of the radioactive materials formerly dumped in order to technically evaluate present and potential permit applications for nuclear waste disposal. Specific objectives include: (1) environmental evaluation of formerly-used sites to determine both their potential as future dumpsites and their generic characteristics from which to judge suitability of other potential deepwater dumpsites; (2) condition of packaged radioactive wastes formerly dumped--with this information to be used as a basis for future radwaste packaging requirements; observations of packaging include hydrostatic pressure effects, corrosion rates, and matrix efficiencies for waste retention; and (3) behavior of radionuclides released from containers by determining current vectors and sediment cation exchange capacities.

Progress: EPA has completed the first successful studies of the major East Coast and West Coast radioactive waste dumpsites, respectively, using the deep submersible ALVIN at a depth exceeding 9000 feet, and the Navy unmanned submersible CURV III at depths of 3000 and 6000 feet. Some sediment radioanalyses and extensive photographic documentation have been completed. Current-vector measurements are being made and container corrosion studies are being planned.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) (Not Applicable)	SIGNATURE OF PRINCIPAL INVESTIGATOR R. S. Dyer	DATE Sept. 12, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ IN-HOUSE STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 01	PROJECT OFFICER R. S. Dyer RESPONSIBLE ORGANIZATION U.S.Environmental Protection Agency

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY SCHEDULED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$100 K	75		8/75	January, 1977

EPA Form 5780-1 (7-73) REPLACES PHS FORM 166 AND SSIE 766 WHICH MAY NOT BE USED.

THERMAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0001

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAY

TITLE OF PROJECT

Dry Cooling Tower Demonstration and Performance Study

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Alban G. Spurrell, Managar, Braintree Electric Light Dept., (617) 843-4432

R. Stephen Schermerhorn, R.W. Beck and Assoc. (303) 292-8396

NAME AND ADDRESS OF APPLICANT INSTITUTION

Town of Braintree, MA
Braintree Electric Light Dept.

44 Allen Street
East Braintree, MA 02184

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project will 1) demonstrate the use of a dry cooling tower on a combined cycle (gas turbine/steam cycle) power plant, 2) evaluate the performance of the dry tower/plant design, and 3) determine the environmental effects of the plant. The specific tasks include 1) assessment of steam flow and distribution and temperatures to better define optimal design characteristics, 2) meteorological effects from the plant and meteorological impacts on plant operation and performance, 3) noise generation monitoring and control, 4) air quality considerations on or from the plant, and determine the economic impact of design and operational factors.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
AGENCY STAFF (Intramural) NEGOTIATED CONTRACT RESEARCH GRANT	02	James R. Chesse RESPONSIBLE ORGANIZATION IERL/RTP/EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$500 K	75	4	Sept. 75	Sept. 79

Preceding page blank

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0061 PROJECT NO. (Do not use this space) SSIE EPA 77AAV
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	

TITLE OF PROJECT

Optimizing Wet/Dry Cooling Towers for Water Conservation and Plume Abatement

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. George A. Englesson, Technical Director, (215) 422-3818
Dr. Michael C. Hu, Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION

United Engineers & Constructors Inc.
1401 Arch Street
Philadelphia, PA 19105

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project will assess the technical and economic feasability of minimizing water use ard reducing vapor plume discharges from wet/dry cooling towers. The project requires two evaluations:

1. Analysis of the technical and economic feasibility of minimizong water use by wet/dry towevs for at least five sites within the Western United States. These analyses will include consideration of meteorology, water quantity, and water quality.
2. Analysis of the technical and economic feasibility of using wet/dry cooling towers for vapor plume abatement at five sites in the Western United States.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) XXX NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. 03	PROJECT OFFICER James B. Cheese RESPONSIBLE ORGANIZATION IERL/RTP/ EPA

FUNDS ALLOCATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$160K	75	1	June 17, 1975	June 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77 ABC

TITLE OF PROJECT

Beneficial Uses of Warm Water from Condensers of Electric Generating Plants

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Principal Investigator: Landis L. Boyd, Assistant Director, Minnesota Agricultural Experiment Station 220 Coffey Hall, Univ. of Minnesota, St. Paul, MN 55101 Tele: (612) 373-0751.

Grant Director: Russell V. Stansfield, Warm Water Administrator, Northern States Power Company 414 Nicollet Mall, Minneapolis, MN 55401 Tele: (612) 330-5519.

NAME AND ADDRESS OF APPLICANT INSTITUTION

Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

(1) a. Evaluate the adequacy and determine the problems of enclosed growth structures as horizontal cooling towers having potential for income. b. Demonstrate methods for economically and reliably heating, cooling, and managing enclosed growth structures using heated water for energy.
(2) The project will entail: (1) The construction of a growth structure (1/2-acre greenhouse) with an experimental heating and cooling system. (2) Check-out of heating and cooling systems and installation of instrumentation. (3) Operate w/o crops to evaluate heating systems, instrumentation, and the structure. (4) Operate as a commercial type enterprise and evaluate all parts of the system, both mechanically and agronomically. (5) Make changes based on performance and/or research developments conducted parallel to this project. (6) Issue semi-annual and annual reports plus frequent news releases. (7) Develop contracts with growers to provide warm water and land for their installation of growth structures at the site following completion and beginning of operation of the new Sherburne County Generating Plant. (8) Seek funding to prepare to connect the demonstration structure to the SCGP as soon as it goes into operation if the results of the study are encouraging.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.V.M., ETC.)
Agricultural Engineering Univ. of MN

SIGNATURE OF PRINCIPAL INVESTIGATOR
Landis L. Boyd

DATE
06 Aug 75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
NEGOTIATED CONTRACT
XX RESEARCH GRANT

TASK NO.
01

PROJECT OFFICER
None assigned

RESPONSIBLE ORGANIZATION
IERL/RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$250 K	75	2	06/20/75	07/01/77

EPA Form 5700-1 (2-73) REPLACES PHS FORM 186 AND SI-SIE ... WHICH MAY NOT BE USED.

3

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77ABC

TITLE OF PROJECT **Water Conservation and Pollution Control Alternatives In Coal Gasification and Liquefaction Processes**

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Principal Investigators – J. Goldstein
Senior Investigators – R.F. Probstein
H. Gold
C. Calmon
R.E. Hicks

NAME AND ADDRESS OF APPLICANT INSTITUTION

Water Purification Associates
238 Main Street
Cambridge, Mass. 02142

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Water requirements for the conversion of coal to alternative fuels will be assessed. This will include process water, cooling water and water for mining, land reclamation, etc. The quality of water effluent from various processes will be determined. Designs will be made for selected coal conversion process plants to be located at selected sites in the Northern Great Plains and in New Mexico. These designs will emphasize optimum use of water and will include the plant and all on-site and off-site auxiliary operations. The major emphasis throughout will be the design of in-plant water treatment facilities to maximize water reuse and recycle.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR D. J. Goldstein

DATE June 17 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (full time)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO. 2

PROJECT OFFICER Dr. A.F. Bartsch

RESPONSIBLE ORGANIZATION Corvallis/PNERL

FUNDS OBLIGATED $200 k

F.Y. 75

NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.

STARTING DATE 4/75

ESTIMATED COMPLETION DATE 4/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 186 AND SSIE FORM, WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA 77 ABC

TITLE OF PROJECT

Heat and Water Flow Data for Major Energy Intesive Industries

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Not yet selected

NAME AND ADDRESS OF APPLICANT INSTITUTION

Not yet selected

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project will identify the point of discharge and will quantify data on quality and quantity of heat discharged as wastes from energy-intensive industrial processes and energy conversion and fuel conversion facilities. The data will be presented in the form of process technology flow sheet of heat, water, air, steam, etc. The data will include information on quantities of heat and fuel rate per unit of product produced, the quality, and the receiving media.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A		

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 03

PROJECT OFFICER: Alden Christianson (tentative)

RESPONSIBLE ORGANIZATION: IERL-CIN / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$60K	75	0	12/1/75	4/1/75

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND 5110 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77ABC

TITLE OF PROJECT
A research demonstration of the Cherne Thermal Rotor, a large scale test.

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Principal Investigator: L. Joseph Roler, Director of Engineering, Cherne Industrial Inc.
& Project Director: 5701 South Country Road 18
Edina, Minnesota 55436
Tele: (612) 933-5501

NAME AND ADDRESS OF APPLICANT INSTITUTION
Cherne Industrial Inc.
5701 South Country Road 18
Edina, Minnesota, 55436

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective is to obtain data on plume definition, drift characteristics, and transport and thermodynamics that can be used to accurately predict environmental phenomena for large thermal rotor systems. The plume will be traversed horizontally & vertically approx. 60meters downwind of the basin by mounting an instrument package on a vertical mast mounted on a flat-bed truck. For measurements further downwind,(300-1500meters) the instrument pkg. can be supported by a helium balloon. Fixed sensors will provide hot and cold water temperatures in the basin. Drift characteristics will be determined by using special instruments ESC has developed.

Thermal instruments will be used to define the plume. They measure wet bulb & dry bulb temperatures, relative humidity, wind speed and direction.

Drift characterization and transport will be monitored with ESC's PILLS II system which measures drift particle size distribution and will be complimented with their water sensitive paper machine.

Isokinetic sampling of drift and chemical analysis will provide information for calculating total drift emission and the drift fraction of a module.

An Airborne Particle Monitoring System (APS) will be used to monitor the concentration of a tracer chemical downwind from the modules. This will provide continuous drift particle transport information.

The processed data output will be comprised of a series of curves which describe the important parameters of interest as a function of the meteorological condition and module spacing. ESC will provide the final report.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A	L. Joseph Roler	05 Aug 75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (Intramural) ☐ NEGOTIATED CONTRACT ☒ RESEARCH GRANT	04	Fredrick A. Roberts (503) 752-4211 ext 378 RESPONSIBLE ORGANIZATION IERL/RTP/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$50 K	75 75	00	8/1/75	1/15/76

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND 5I-5I WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
[illegible]

TITLE OF PROJECT:
Economic & Conservation Aspects of Integrated Energy Use Applications

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:
Not yet selected

NAME AND ADDRESS OF APPLICANT INSTITUTION
Not yet selected

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The project entails the determination of economic and environmental aspects of supplying total energy needs to large load centers or complexes. The cost of fuel, labor, materials, & financing will be postulated & the alternatives of central vs conventional means of multi-source energy supply will be compared on the basis of economics and environmental benefits.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A		

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (Intramural)	05	Alden Christianson (tentative)
☒ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
☐ RESEARCH GRANT		IERL, Cincinnati/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION
$40K	75	0	10/1/75	9/1/77

EPA Form 5760-1 (2-72)   REPLACES PHS FORM 166 AND 21-511 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0063

PROJECT NO. (Do not use this space)
SSIE
EPA
77 ABC

TITLE OF PROJECT:
Advanced Waste Heat Control - Waste Heat & Water Utilization

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Victor W. Lambou	Environmental Protection Agency
Dr. David H. McNelis	EMSL-Las Vegas
	P.O. Box 15027
	Las Vegas, NV 89114

NAME AND ADDRESS OF APPLICANT INSTITUTION

Contractor Selection Pending

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

(1) Objectives. The objective of this project is to determine the adequacy of the available methods for laboratory, in-situ or remote measurements of hazardous chemicals from cooling systems as required by water quality criteria or effluent standards. Instrumentation/methodology will be modified or developed where deficiencies exist and monitoring specifications will be prescribed.

(2) Approach. In use, and available, in-situ and remote sensing techniques for measuring thermal plume and hazardous chemicals in cooling effluents will be surveyed for their adequacy. A prioritized deficiency listing will be prepared and techniques/instrumentation will be modified or developed as appropriate.

(3) Current Plans/Progress. Award of contract is pending but anticipated to be executed 9/75.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
	(702)736-2969	8/15/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Internal)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.: 08

PROJECT OFFICER: Dr. David H. McNelis

RESPONSIBLE ORGANIZATION: Monitoring Operations Division / EPA EMSL-Las Vegas

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$35 K	75	4	9/75	12/80

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)

SSIE

EPA

77ABC

TITLE OF PROJECT

Advanced Waste Heat Controls - Waste Heat and Water Utilization

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Mr. A. Pressman
Mr. M. Dockter
Mr. E. Pressman

Remote Sensing Division, Remote Sensing Operations Branch
Environmental Monitoring and Support Laboratory,Las Vegas
P.O. Box 15027
Las Vegas, NV 89114 Tel: (702) 736-2969, ext. 336

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Perfect aerial infrared survey techniques of major thermal discharges to develope standard operational procedures for use by environmental regulatory agencies. A rigorous error analysis of the total system will be conducted including laboratory and field measurements and a manual will be published covering all aspects of conducting the subject surveys.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

A Pressman

Albert E. Pressman

DATE

Aug. 17, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)

L AGENCY STAFF (Intramural)

B NEGOTIATED CONTRACT

RESEARCH GRANT

TASK NO.

09

PROJECT OFFICER

Albert E. Pressman (702) 736-2969

RESPONSIBLE ORGANIZATION

EMSL-LV, Remote Sensing Division/ EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
100 K	1975	0	May 1975	1976*

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 1A WHICH MAY NOT BE USED.

*Project not completed

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA 77ABC

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Aerial Remote Sensor Data Collection, Processing and Analysis for Environmental Monitoring.

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

H.L. Proffit, Project Manager
J.A. Novotny, Systems Engineering
J. Duggan, Industrial P.I.
W. Johnson, R. Costello, H. Coppedge
P. Holyer, Data Analysis Support
M. Gray, D. Williams, L. Gage
G. Kenrick, Sensor/Systems Operation

NAME AND ADDRESS OF APPLICANT INSTITUTION
Lockheed Electronics Company, Inc.
16811 El Camino Real
Houston, Texas 7705

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The work will involve a development of an SOP describing the methods for production of isothermal maps from thermal scanner data. Maps are to be used as interpretation tools to state-of-the-art tolerances. The technique begins with A to D conversion of scanner data. An atmospheric correction based on homogeneous reference areas of water is then applied to the data to eliminate variation in scan angle and the data forced to a limited number of ground truth temperature points, thus establishing atmospheric temperature corrections. These corrections are then applied to all data acquired in that mission. Another development will be application of aerial multispectral techniques in waterbody monitoring. The developmental program would lead from photographic, through airborne spectroscopy, to, ultimately, a mapping scanner. Analyses of data to detect chlorophyll, turbid water, certain elements of water mass structures and some pollutants are possible if proper bands and detectors are specified and installed in a scanning system. Such investigations need to be expanded to determine concentration levels and the error effects caused by various meteorological conditions, in addition to the development of refinements of technique in order to improve confidence level. A basic problem, however, is the separation of interfering molecular combinations.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR Prepared by Abu Bakar Jaafar	DATE September 10, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. 9	PROJECT OFFICER Albert E. Pressman RESPONSIBLE ORGANIZATION NERC/EPA Cincinnati, Ohio 45268

FUNDS OBLIGATED $317,035	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. 0	STARTING DATE 11/11/74	ESTIMATED COMPLETION DATE 11/10/75

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0001

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-BB

TITLE OF PROJECT
Advanced Waste Heat Control

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Hollis B. Flora, II, Chemical Engineer
Power Research Staff
524 Power Building
Chattanooga, Tennessee 37401 telephone: 615/755-2771

NAME AND ADDRESS OF APPLICANT INSTITUTION

Tennessee Valley Authority
Knoxville, Tennessee

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objectives of this project are to evaluate the use of membrane processes, e.g., reverse osmosis and ultrafiltration, for refurbishing power plant discharge waters to make them acceptable for reuse; to determine whether one or more mechanisms may be beneficially utilized to reduce impingement; to evaluate the engineering and environmental aspects of wet/dry cooling towers; and to participate in the evaluation of the Cherne Spray Thermal Rotor System.

The approach includes: (1) laboratory studies on commercially available reverse osmosis and ultrafiltration membranes to determine their ability to render power plant waste streams suitable for recycle, (2) studies on the more promising mechanism for reduction of fish impingement, and (3) studies on a prototype wet/dry cooling tower to evaluate the engineering and environmental problems associated with the tower.

Current plans include beginning laboratory work in the membrane task around October 1, 1975.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR Hollis B. Flora, II	DATE 8/18/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 1-3	PROJECT OFFICER Hollis B. Flora, II RESPONSIBLE ORGANIZATION Power Research Staff, TVA

FUNDS OBLIGATED $1,325	F.Y. 1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 3	STARTING DATE May 1975	ESTIMATED COMPLETION DATE March 1978

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R[illegible]

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
EPA-IAG-D5-E721-BF

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Waste Heat Utilization

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATIONS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director: B. J. Bond, Asst. Dir. of Div. of Agr. Development* (ext. 618).
Support personnel: C. E. Madewell, Agr. Economist, Agr. Resource Dev. Branch* (ext. 743),
J. J. Maddox, Agriculturist, Agr. Resource Dev. Branch* (ext. 743),
D. A. Mays, Agriculturist, Soils & Fertilizer Research Branch* (ext. 202),
R. S. Pile, Agricultural Engineer, Agr. Resources Dev. Branch* (ext. 743).

NAME AND ADDRESS OF APPLICANT INSTITUTION

*Tennessee Valley Authority (Telephone 205-383-4631)
Office of Agricultural and Chemical Development
Muscle Shoals, Alabama 35660

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Task I. Soil heating to extend crop growing season involves research to determine the feasibility of using waste heat to extend the growing season of field and horticultural crops. Preliminary soil heating test using electric cables to simulate warm water has looked encouraging. Soil-warming, compared with nonheated soil, has more than doubled the yield of some vegetable crops under field conditions. Further studies of the response of plants to warmed soil will be conducted utilizing discharged hot water at Muscle Shoals and/or the Waste Heat Utilization Center at Browns Ferry.

Task II. Biological recycling of nutrients from livestock wastes focuses on the utilization of waste heat in the management of livestock wastes. Research is being conducted to determine if the nutrients in animal wastes can be removed and utilized by aquatic plants, and to determine if these plants can be used as a primary food source for beneficial marine animals, or as a direct feedstuff for rumen animals. The recycling systems are being designed to permit the operation of a livestock enterprise on a limited land area with minimum environmental effects. Nutrients will be removed from the liquified livestock waste by algae and other aquatic plants with subsequent harvest by fish and other aquatic organisms such as clams which will be used as a high protein supplement for livestock rations and for possible human consumption.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)
None

SIGNATURE OF PRINCIPAL INVESTIGATOR
B. J. Bond

DATE
May 12, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
I & II

PROJECT OFFICER
B. J. Bond

RESPONSIBLE ORGANIZATION
Tennessee Valley Authority
Office of Agricultural & Chemical Development

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$3000	1975	4	May 7, 1975	June 1979

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SIE 166A WHICH MAY NOT BE USED.

IMPROVED EFFICIENCY

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAJ

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Environmental Assessment of Energy Supply Systems Using Fuel Cells

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected April 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Fuel cells and their potential as non-polluting, energy-conserving power sources have gained great attention in recent months. When viewed alone, they are cleaner and more efficient than our present coal-fired power plants, automobile engines, etc. The question remains, however, is a complete energy supply system using fuel cells cleaner and more efficient than alternative systems? Are the investment and operating costs comparable? This study shall attempt to answer these questions.

Using the information from this study and other sources, we shall decide whether to support or to recommend the development of fuel-cell systems or alternative energy supply systems.

For the purposes of this study an "energy supply system" is a total system for supplying an energy product to a consumer. The system starts with a natural energy source (such as coal or oil shale), processes it, converts it into an intermediate fuel, transports the fuel to the consumer, and there uses it to produce an energy end-product. The energy end-product can be heating, cooling, lighting, motive work via motors, etc.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)
SIGNATURE OF PRINCIPAL INVESTIGATOR
DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.
2

PROJECT OFFICER
Stanley J. Bunas

RESPONSIBLE ORGANIZATION
IERL-RTP/EPA

FUNDS OBLIGATED
550 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.

STARTING DATE
Mar. 76 (Est.)

ESTIMATED COMPLETION DATE

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SIE 76A WHICH MAY NOT BE USED.

Preceding page blank

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0061

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77AAW

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Environmental Assessment of Advanced Energy Conversion Technologies

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected April 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The purpose of this work is to provide an environmental assessment of a variety of advanced energy conversion technologies. Cycles to be investigated include MHD, high temperature gas turbines, the Feher cycle, potassium topping cycles, thermionics and thermogalvanics. Each cycle will be evaluated for its impact on air pollution emissions, solid waste disposal, and water and liquid waste.

The end result of this program will be a preliminary environmental assessment of each cycle and suggestions of appropriate control technology which can be incorporated into the cycles to improve their environmental impact.

This procurement requests proposals for a 40,000 manhour level of effort contract to environmentally assess several advanced energy conversion cycles. The study will involve both analytical and field testing studies to evaluate the impact of each cycle on air, water, and land quality. The study will also develop programs plans for the application or development of pollution control technology as required for each of the cycles studied.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED *(Medical, dental, etc.)*	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD *(Check one)* ☐ AGENCY STAFF *(Intramural)* ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 1	PROJECT OFFICER W. Steven Lanier RESPONSIBLE ORGANIZATION IERL-RTP / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$200 K	75		Mar.76(Est.)	June, 1985

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 7EA WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77ACL

TITLE OF PROJECT
Environmental Assessment of Waste-to-Energy Processes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

INTERIM - final expected May '76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

New processes are being developed to recover energy and material resources from waste materials. Little is known of the pollutants emitted from these processes or the optimum methods of pollution control. The purpose of this effort will be to characterize the emissions from new waste material resource recovery process, to establish the most cost-effective and environmentally acceptable methods of pollution control, and to identify new pollution control technology development needs. The objectives of this effort will be met by a wide range of activities which will include: technology overview studies, the acquisition of process data, the development of environmental assessment criteria, the performance of pollution control trade-off studies, the identification of improved pollution control techniques, the development of a general test program for waste-to-energy processes, the selection of test sites, the development of experimental techniques, the development of test plans for specific processes, the performance and analysis of tests on waste-to-fuel processes and the evaluation and reporting of the previous activities.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., etc.)
SIGNATURE OF PRINCIPAL INVESTIGATOR
DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Inhouse)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
1.1

PROJECT OFFICER
James D. Kilgroe

RESPONSIBLE ORGANIZATION
IERL-RTP/ EPA

FUNDS OBLIGATED
$400 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.

STARTING DATE
April 76 (Est.)

ESTIMATED COMPLETION DATE

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166A WHICH MAY NOT BE USED

[illegible]

NOTICE OF RESEARCH PROJECT	Form Approved OMB No. [illegible]
	PROJECT NO. (Do not use this space) SSIE EPA 77ACM
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	

TITLE OF PROJECT

Utilization And/or Stabilization of Pyrolytic Oil From Pyrolysis Of Agric., Municipal &-

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. James A. Knight, Principal Research Scientist, Waste Utilization Laboratory, Engineering Experiment Station

Mr. L. W. Elston, Senior Research Scientist, Waste Utilization Laboratory, Engineering Experiment Station

NAME AND ADDRESS OF SUPPORTED INSTITUTION

Georgia Institute of Technology
225 North Avenue
Atlanta, Georgia 30332

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are furnished to investigators who request such information. Your summary is to be used for these purposes.

The broad objective of this program is to maximize the value of pyrolytic oils obtained by pyrolysis of agricultural, municipal, forestry and other wastes so that maximum resource recovery and economical utilization can be realized from these materials. In order to accomplish this objective, an extensive research and development program is proposed which will develop a data base for evaluation of the oils for uses other than as a fuel. Pyrolytic oils have potential as a source of chemicals, as a chemical feedstock, and for specialty uses for specific fractions obtained from the oils. The overall investigative program is divided into three phases which represent distinct areas for research and development but at the same time are interrelated.

Phase I, during the first year, would involve primarily physical processing of the oils and characterization of products and fractions obtained by the processing methods. Physical processing would involve various methods of distillation, such as simple distillation at atmospheric and reduced pressure, use of fractionation columns, steam distillation, flash distillation and molecular distillation. Pretreatment of the oil prior to processing will be investigated as a means of improving its processing properties.

Phase II, during the second year, would involve chemical processing of the oil and/or fractions from physical processing. Chemical processing would include, but not be limited to, hydrogenation, alkylation and cracking. Products from different chemical processing techniques would be characterized as to their chemical and physical nature.

Phase III, during the third year, would be determined in large measure by the results of Phases I and II. An evaluation of the results of Phases I and II would be made to select the most promising processing and treatment methods for upgrading pyrolytic oils. These processing methods would then be investigated at the pilot plant level.

IDENTIFY ORGANIZATIONAL UNIT INVOLVED	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
Waste Utilization Laboratory Engineering Experiment Station, Ga. Tech.		

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ AGENCY STAFF (In-house)	2.1	R.L. Sternberg
☒ [illegible]		RESPONSIBLE ORGANIZATION
☐ [illegible]		SHWRL/Cincinnati / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$325 K	75		6/75	6/77

EPA Form 5710-1 (5-73) REPLACES PHS FORM 166 A) WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA
77 ACM

TITLE OF PROJECT
Utilization of Wastes as Fossil Fuel Energy Substitutes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

E. Milton Wilson, Project Manager, Systems Division
Roland F. Kelly, Vice President-Environmental Programs
John M. Leavens, P. E.
William H. Parkhill, P. E.
Robert E. Mitchell, P. E.
Nathan W. Snyder, Ph. D.

NAME AND ADDRESS OF APPLICANT INSTITUTION
The Ralph M. Parsons Company
Systems Division
100 W. Walnut Street
Pasadena, CA 91124 (213) 440-3052

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objectives: To investigate processes for the recovery of energy from wastes other than mining wastes. A compilation of information on the types, quantities, and location of wastes will be made; an engineering analysis conducted on selected processes; and development needs recommended.

Approach: Information will be reviewed and interviews conducted with investigators in the technologies of combustion, pyrolysis, hydrolysis, synthetic fuel generation, and bioconversion. Estimates of the date and costs of commercial operations will be made, mass and energy balances established (including pollutant streams), and pollution control equipment needs described.

Current Plans: Project initiated on June 25, 1975. Currently in Technology Assessment phase.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)
N.A.

SIGNATURE OF PRINCIPAL INVESTIGATOR
E. M. Wilson

DATE
July 15, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
2.1 A

PROJECT OFFICER
J. Kilgroe

RESPONSIBLE ORGANIZATION
IERL-RTP, EACD, FPB

FUNDS OBLIGATED
$95,600

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.
1

STARTING DATE
June 25, 1975

ESTIMATED COMPLETION DATE
Sept. 1976

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT** PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	Form Approved OMB No. [illegible] PROJECT NO. (Do not use this space) SSIE EPA 77 ACM

TITLE OF PROJECT
St. Louis - Union Electric Emission Testing Support

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

L. J. Shannon, Project Director

NAME AND ADDRESS OF APPLICANT INSTITUTION

Midwest Research Institute
425 Volker Blvd.
Kansas City, Missouri 64110

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A refuse processing plant and RDF firing equipment was designed, constructed and operated under a demonstration grant to the city of St. Louis.

Testing and evaluation on the demo has been performed under a contract to the Midwest Research Institute. Activities under the contract include

1. planning, performance and evaluation of multi-media pollution tests
2. performance and cost studies of the equipment and facilities
3. performance of trade-off studies to evaluate alternative equipment operating conditions need to minimize costs and pollution
4. preparation of special technology transfer report.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE Sept. 17, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT		TASK NO. 2.1 A		PROJECT OFFICER J. Kilgroe RESPONSIBLE ORGANIZATION IERL-RTP, EACD, FPB
FUNDS OBLIGATED $498,800	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. 1	STARTING DATE April 9, 1975	ESTIMATED COMPLETION DATE April 1976

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SIE

EPA

77 ACM

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Fine Shredding Study for Waste Processing

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

L. J. Shannon, Project Director
K. P. Ananth, Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION

Midwest Research Institute
425 Volker Blvd.
Kansas City, Missouri 64110

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

A study is being performed to evaluate the costs and benefits of fine shredding MSW for various waste-to-energy processes. The results of this study will be used to fund technology development work by IERL-CINN & IERL-RTP.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, etc.) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE Sept. 17, 1975

FOR OFFICE USE ONLY

	SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER J. Kilgroe
	AGENCY STAFF (Intramural)		
X	NEGOTIATED CONTRACT	2.18	RESPONSIBLE ORGANIZATION IERL-RTP, EACD, FPB
	RESEARCH GRANT		

FUNDS OBLIGATED 25 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE July 15, 1975	ESTIMATED COMPLETION DATE Dec. 1975

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SIE 166A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. [illegible]

PROJECT NO. (Do not use this space)
SSIE
EPA 77ACM

TITLE OF PROJECT
Materials and Fuel Recovery Processing Research at Pilot Plant Scale

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Harvey Alter, Director of Research Programs, NCRR
Mr. Stu Natof, Staff Engineer, NCRR

NAME AND ADDRESS OF APPLICANT INSTITUTION
National Center for Resource Recovery, Inc.
1211 Connecticut Avenue, N.W.
Washington, D.C. 20036

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objectives: In the area of municipal solid waste preprocessing to recover both fuel and material resources of value, this research will attempt to evaluate various hardware and equipment items in terms of their individual and process schematic performance. The main object is a better understanding of the efficiency and combined operating economics and suitability of function.

Approach: NCRR's own facility in Washington, D.C. known as the Equipment Test and Evaluation Facility (ETEF) includes the necessary grinders, air classifiers, blowers, screens, trommels and aluminum and glass recovery units to conduct real-life operational tests. Comparative tests under varied conditions can be made easily, including changing the equipment if needed.

Progress: Currently the facility is essentially ready for operation, and research tests can begin almost immediately.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Inhouse)
☒ RESEARCH CONTRACT
☒ RESEARCH GRANT

TASK NO. 2.2

PROJECT OFFICER R.L.Sternberg

RESPONSIBLE ORGANIZATION SHWRL/Cincinnati/ EPA

FUNDS OBLIGATED $100 K Base $20 K Energy

F.Y. 75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.

STARTING DATE 6/75

ESTIMATED COMPLETION DATE 12/75

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 77A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0093

NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)
SSIE
EPA
77 ACM

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT
Preparation, Use and Cost of d-RDF as a Supplementary Fuel in Stoker Fired Boilers

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. Harvey Alter, Director of Research Programs
Mr. Stu Natof, Staff Engineer
Dr. Gil Jackson, Chemical Engineer
Mr. Valurop, Staff Test Engineer

Mr. William Schlag, Super of Oper.

NAME AND ADDRESS OF APPLICANT INSTITUTION
National Center for Resource Recovery, Inc.
1211 Connecticut Avenue, N.W.
Washington, D.C. 20036

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This Research Grant involves the study of the technical and economic aspects of preparing and using densified forms of municipal solid waste as a supplementary fuel in industrial and institutional stoker coal fired boilers. Investigations will be conducted to establish methodology for preparing densified refuse derived fuel (d-RDF). Process and product characterizations will be developed to enable establishment of specifications for d-RDF. Densification forms will include pellets, briquettes, and cubettes. Independent boiler burn tests and operations will be conducted in conjunction with this research to fully characterize the concept.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE 9-2-75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
AGENCY STAFF (In-house)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO. 2,4

PROJECT OFFICER R.R. Stenburg

RESPONSIBLE ORGANIZATION EPA/MERL/CINN

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
300 K	75		6/75	6/77

EPA Form 5760-1 (7-73) REPLACES EPA FORM 185 AND 1 THAT NOT IN USED

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	*Form Approved* *OMB No. 158-R0001*
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	PROJECT NO. (Do not use this space) SSIE EPA 77ACM

TITLE OF PROJECT

Resource Recovery Study of the County of Hawaii

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Edward Harada, Chief Engineer, County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

NAME AND ADDRESS OF APPLICANT INSTITUTION

County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of the proposed project is to carry out a feasibility study to evaluate various alternatives for the disposal of the County of Hawaii's municipal solid waste. Particular emphasis is given to the possibility of producing electricity through the burning of refuse with bagasse in existing boilers owned by several local sugar companies. The work plan includes: surveys of existing solid waste collection, transfer, and disposal facilities; determination of present and future waste quantities and compositions; identification of available equipment and sites for waste pre-processing; evaluation of methods for handling the combustible fraction at the boilers; and recommendations for a specific course of action for the County to take.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) NA	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Inhouse) ☒ NEGOTIATED CONTRACT ☒ RESEARCH GRANT	TASK NO. 2.4	PROJECT OFFICER R.L. Sternberg RESPONSIBLE ORGANIZATION SHWRL/Cincinnati/ EPA

FUNDS OBLIGATED $190 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 3/75	ESTIMATED COMPLETION DATE 6/77

EPA Form 5760-1 (7-72) REPLACES EPA FORM [illegible] AND SSIE 26A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0021

PROJECT NO. (Do not use this space)
SSIE
EPA 77ACM

TITLE OF PROJECT
Evaluation of Ames Solid Wastes Resources - An Energy Recovery System

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

A.O. Chantland, Project Manager, Public Works Director (Ames)
Dr. L. J. Shannon, Midwest Research Institute
A.W. Joensen, Iowa State University
Dr. E.R. Baumann, Director, ERI, Iowa State University

NAME AND ADDRESS OF APPLICANT INSTITUTION

City of Ames, Iowa 50010

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The study will assess the effects of using municipal solid waste as a supplementary fuel. Co-firing of MSW with coal in stoker and tangentially-fired boilers will be conducted and since one boiler is the same as at St. Louis, studies will permit confirmation, and comparison of selected St. Louis results. Assessments will be made of the technical and environmental aspects of these co-firing techniques. In addition, technical and economic tests and evaluations will be conducted on the second generation MSW processing facility associated with supplying the refuse derived fuel.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (medical, dental, etc.)
Engineering & Scientific

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
INTRA-AGENCY (In-house)
X RESEARCH CONTRACT
X RESEARCH GRANT

TASK NO.
2.4

PROJECT OFFICER
R.L. Sternberg

RESPONSIBLE ORGANIZATION
SHWRL/Cincinnati / EPA

FUNDS OBLIGATED
$490 K

F.Y.
75

NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.

STARTING DATE
3/75

ESTIMATED COMPLETION DATE 6/77

EPA Form 5720-1 (7-73) REPLACES PHS FORM ... WHICH IS OBSOLETE

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA

77ACM

TITLE OF PROJECT

Environmental Effect of Utilizing Solid Waste as a Supplementary Power-Plant Fuel

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dale A. Vaughan	Senior Research Scientist	Materials Science Dept., Corrosion Research Section
W. K. Boyd	Manager	" " " " "
H. H. Krause	Researcher	Atmospheric Sciences Section
R. B. Engdahl	Senior Researcher	Fuels and Combustion Systems Section

NAME AND ADDRESS OF APPLICANT INSTITUTION

Battelle Columbus Laboratories
505 King Avenue, Columbus, Ohio 43201

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this project is to investigate the benefits to the environment resulting from the utilization of solid waste as a supplementary fuel in existing coal-fired power plants.

The approach is to evaluate the gaseous and particulate emission plus the corrosiveness of combustion products as a function of refuse-coal ratio and as a function of sulfur content of the coal. Experiments will be conducted in an operating power station through cooperation of the City of Columbus, Ohio.

Furnace and stack gas and particulate samples will be collected throughout the periods that corrosion probes are inserted at several locations in the heat-recovery passes. These probes will be examined for corrosion attack and deposit composition for various gas and metal temperatures to provide guidance in future utilization of solid waste as a supplementary fuel.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE Jan. 9, 1974

FOR OFFICE USE ONLY

SUPPORT INSTRUMENT ☐ INTRAMURAL ☐ EPA STAFF ☐ CONTRACT ☒ RESEARCH GRANT	TASK NO. 2.5	PROJECT OFFICER R.L. Sternberg RESPONSIBLE ORGANIZATION SHWRL/Cincinnati EPA

PPB CODE 5130 K Base 5160 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY PLANNED BEYOND CURRENT F.Y. 1	STARTING DATE 6/74	ESTIMATED COMPLETION DATE 5/76

EPA Form 5700-1 (2-73) REPLACES PHS FORM WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77 ACM

TITLE OF PROJECT
Evaluation of Emissions from MSW-Oil Fired Boiler

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

M. P. Schrag, Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION
Midwest Research Institute
425 Volker Blvd.
Kansas City, Missouri 64110

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

EPA and other government authorities are funding demonstrations for processing and firing refuse in oil fired boilers. A study is being performed to identify the costs of meeting air pollution regulation in these boilers. Recommendations will be made on development of improved air pollution control techniques.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (M.D., D.D.S., [illegible]) N.A.	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE Sept. 17, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
☐ AGENCY STAFF (Intramural)
☒ NEGOTIATED CONTRACT
☐ RESEARCH GRANT

TASK NO.
2, 6

PROJECT OFFICER
J. Kilgroe

RESPONSIBLE ORGANIZATION
IERL-RTP, EACD, FPB

FUNDS OBLIGATED $25,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY SUPPORTED BEYOND CURRENT F.Y. 1	STARTING DATE July 8, 1975	ESTIMATED COMPLETION DATE Jan. 1976

EPA Form 5760-1 (7-73) REPLACES PHS FORM 186 AND SSIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0051

PROJECT NO. (Do not use this space)
SSIE
EPA
77 ACM

TITLE OF PROJECT
Rotary Kiln Gasification of Solid Wastes and Sewage Sludge

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

John A. Coffman, Project Director
Roger H. Hooverman, Research Engineer

NAME AND ADDRESS OF APPLICANT INSTITUTION
Wright-Malta Corporation
Plains Road
Ballston Spa, New York 12020

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This research will test the thesis that a mixture of raw solid waste and liquid sewage sludge can be converted cleanly into fuel gas, primarily by steam, at temperatures below 1000°F, in a pressurized, externally heated rotary kiln.

The research equipment, built under contract with Empire State Electric Energy Research Corp. (a New York state utility consortium) is a rotary autoclave (minikiln), 1 ft. in diameter by 5 ft. in length, operating at pressures to 500 psi and temperatures to 1100°F, with provision for steam/air injection under the moving charge.

Experimentation will determine the influence of these parameters: proportions of liquid to solid waste, types of waste and sludge, size of pieces of trash, maximum temperature, time, atmosphere, pressure speed of rotation, and fullness of minikiln. The effluent gases will be analyzed and mass balances obtained.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR John A. Coffman	DATE Oct 30, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 2.7	PROJECT OFFICER R.L. Sternberg RESPONSIBLE ORGANIZATION SHWRL/Cincinnati / EPA

FUNDS OBLIGATED $250 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE 6/75	ESTIMATED COMPLETION DATE 6/77

EPA Form 5760-1 (7-73) REPLACES PHS FORM 166 AND SSIE 1A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77 ACM

TITLE OF PROJECT

Co-incineration of Sewage Sludge with Refuse and/or Coal

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dale C. Bergstedt, Deputy Director of Operations 612/222-8423
Wilber A. Blain, Chief Process Engineer
Gary J. Swanson, Staff Engineer
Robert L. Hughes, Superintendent, Seneca Wastewater Treatment Plant

NAME AND ADDRESS OF APPLICANT INSTITUTION

Metropolitan Waste Control Commission
350 Metro Square Building
St. Paul, Minnesota 55101

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Purpose of the project is to evaluate the operational worth and environmental aspects, if any, of adding combustible solid matter to wastewater plant sludges and filter cakes, as offsets to part or all of the fuels conventionally used in sludge incineration practice. Impending shortages of natural gas and fuel oil create the sense of urgency in this work. Low-sulfur coal and combustible solid wastes will be utilized as admix materials in various test sequences. Wastes to be tried include shredded combustibles from refuse, in pelletized and loose form, wood chips from urban tree-trimming, shredded tires, and industrial combustible wastes. A full-scale multiple hearth furnace in a modern wastewater treatment plant will be used. Applicability to other incinerators of the 200-plus total in United States' communities will be assessed. Assay of stack gases, after scrubbing, will include relevant chemical properties of public health significance. Scrubber drainage and ash will also be assayed.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR for Dale C. Bergstedt	DATE August 11, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☐ NEGOTIATED CONTRACT ☒ RESEARCH GRANT	TASK NO. 2.7	PROJECT OFFICER R. A. Olexsey 513/684-8271 RESPONSIBLE ORGANIZATION EPA, WRD, MERL, Cincinnati, Ohio

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$250 K	1975	N/A	8/01/75	7/31/77

EPA Form 5780-1 (7-72) REPLACES FHS FORM 166 AND SIE 16A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. 158-R0051
	PROJECT NO. (Do not use this space) SSIE EPA 77ACM
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	

TITLE OF PROJECT

Pilot Scale Pyrolytic Conversion of Mixed Waste to Fuel

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Director: Dr. John Howard
Project Manager: Mr. James Norton

NAME AND ADDRESS OF APPLICANT INSTITUTION

Energy Resources Co. Inc.
185 Alewife Brook Parkway
Cambridge, MA 02138

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objectives: To develop models relating fraction of fuel products (gas, liquid, solid) produced in pyrolysis of various types of solid wastes as function of pyrolysed conditions. Solid wastes include mixed municipal, agricultural, industrial, etc.

Approach: Experimental study using small batch pyrolyser and pilot size (200 kg/hr) fluidised bed pyrolyser to produce data for model development and verification. Statistical and semi-empirical models will be examined. Status: Project started 1 July 1975.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR James E. Norton J. Norton	DATE 8/4/75

FOR OFFICE USE ONLY

METHOD OF SUPPORT (Check one) A - [illegible] B - [illegible] X C - [illegible] CONTRACT D - [illegible]	TASK NO. 2.8	PROJECT OFFICER R.L. Sternberg RESPONSIBLE ORGANIZATION SHWRL/Cincinnati/ EPA

FUNDS OBLIGATED $300 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 6/75	ESTIMATED COMPLETION DATE 6/77

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY **NOTICE OF RESEARCH PROJECT**	Form Approved OMB No. [illegible]
	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77ACM

TITLE OF PROJECT

Conversion of Solid Waste to Polymer Gasoline

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Charles B. Benham, Research Aerospace Engineer

James P. Diebold, Chemical Engineer

NAME AND ADDRESS OF APPLICANT INSTITUTION

Naval Weapon Center
China Lake, California 93555

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data.) In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

OBJECTIVE: To determine the feasibility, both technical and economic, of pyrolyzing the organic fraction of municipal solid waste to sufficient quantity of hydrocarbon gases (ethylene, ethane, etc) to produce chemical intermediates. Phase I of subsequent studies are directed towards the polymerization of hydrocarbon fraction to liquid fuel (polymer gasoline) suitable for internal combustion engine operation.

APPROACH: 1. An existing pyrolysis unit will be operated under various conditions to maximize the production of unsaturated hydrocarbons.

2. A polymerization unit will be designed, fabricated and added to the pyrolysis unit.

3. Data will be obtained over a wide variety of conditions using the combined pyrolysis and polymerization units. Compositional analysis on pyrolysis and polymerization products will be performed for each test condition.

4. Preliminary design of a scaled-up pilot plant will be developed.

PROGRESS: Work on this project is just starting.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Inhouse) ☒ NEGOTIATED CONTRACT ☐ RESEARCH GRANT	TASK NO. 2.8	PROJECT OFFICER Charles J. Rogers, Senior Research Chemist RESPONSIBLE ORGANIZATION Solid & Hazardous Waste Research Division NERL-Cincinnati / EPA

FUNDS OBLIGATED 100K	F.Y. 75	NO. OF FUTURE YEAR TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE June 11, 1975	ESTIMATED COMPLETION DATE June 1976

EPA Form 5760-1 (7-73) REPLACES EPA FORM [illegible] WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0051

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)

SSIE

77 ACM

TITLE OF PROJECT Development of a Prototype Portable System for Pyrolysis of Agricultural Wastes into Fuels and Other Products

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. John W. Tatom, Principal Research Engineer
Dr. James A. Knight, Principal Research Scientist

NAME AND ADDRESS OF APPLICANT INSTITUTION

Georgia Institute of Technology - Engineering Experiment Station
305 Administration Building
Atlanta, Georgia 30332

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less; Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Agricultural wastes accumulate in the U. S. at the rate of more than 500 million dry tons/year and represent a continuing nuisance and pollution source in the rural environment. Conversely, these wastes represent a potential source of sulfur free fuel and other chemical products. However, the great distances that these wastes must be hauled, their large moisture content, and the necessity for construction of new boilers or furnaces to burn them have made traditional waste utilization concepts impractical or marginal at best. The proposed program, however, involves the design, fabrication, and test of a portable pyrolytic conversion system capable of converting these bulky wet low energy wastes into a dense dry high energy fuel at the source of their original production, thereby saving more than 75% of the transportation costs. Further, the form of these fuels is such that they can be used in existing conventional coal fired boilers and/or mixed with high sulfur coal to form an acceptably low sulfur fuel.

In addition, the study will investigate the potential uses of the pyrolysis products other than as fuels, but including the production of methyl-fuel. The latter fuels, because they are liquid, could be used by farmers to operate their equipment, dry their crops, and heat their homes and barns, thus making them almost self sufficient, energy-wise.

TOTAL PROFESSIONAL MAN-YEARS INVOLVED (Federal Funds only)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

SUPPORT BY [illegible]

[illegible] (Research)

[illegible] (Contract)

☒ [illegible]

[illegible] NO.
2,9

PROJECT OFFICER
D. A. Oberacker
Solid & Hazardous Waste Research Division
MERL-Cincinnati

FUNDS [illegible]	F.Y.	NO. OF FUTURE YEARS TENTATIVELY BEYOND CURRENT	STARTING DATE	EXPECTED COMPLETION DATE
573,770	76	(1)	6-1-75	11-30-77

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA 77 ACM

TITLE OF PROJECT

An Anaerobic Digester Heated by Solar Energy

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Mr. David Cassel, Project Director 301/268-0717

Mr. Jess W. Malcolm, Project Coordinator

Dr. Claude Crawford, Assistant Project Director

NAME AND ADDRESS OF APPLICANT INSTITUTION

Environmental Systems, Inc.
150 South Street
Annapolis, Maryland 21401

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The objective of this project is an in-depth technical feasibility study of the use of solar energy as a means of heating an anaerobic sludge digester. Based on the best information available on solar energy equipment capacities and cost, a solar energy collection, heat storage, and heat transfer system will be designed that will provide sludge digester heating requirements for one of the two active anaerobic digesters at the municipal wastewater treatment plant at Annapolis, Maryland. Estimation will be made of all capital, installation, operating, and maintenance costs of the solar energy system and compared with costs of a digester heating system utilizing sludge gas. Cost comparisons between the two systems and the net value of alternative uses of the sludge gas will be made. Specifications and engineering drawings will be prepared of all hardware associated with the optimal designed solar energy system. In addition, a research plan will be prepared for demonstrating the technical feasibility and economic advantages of using solar energy for heating an anaerobic digester in a wastewater treatment plant. The research plan will include proposed methods for (1) installing the solar energy system, (2) operating the system, (3) evaluating the system through collection of operating data, and (4) evaluating costs, trade-off advantages and disadvantages over other energy sources, and scale-up economics. This part of the work will be planned around two similar digesters operating under identical conditions except one will be heated with sludge gas or oil and the other with solar energy.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
N/A	R.V. Villiers for David Cassel	August 11, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER / RESPONSIBLE ORGANIZATION
☐ AGENCY STAFF (Intramural) ☐ NEGOTIATED CONTRACT ☒ RESEARCH GRANT	2.10	R. V. Villiers 513/684-8268 EPA, WRD, MERL, Cincinnati, Ohio

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$30,000	1975	None	September 1975	Feb. 1976

EPA Form 5740-1 (7-72) REPLACES PHS FORM 166 AND SSIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA
77ACM

TITLE OF PROJECT
A Comprehensive study of the state-of-the-art of Bioconversion as a Waste Processing

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT
Dr. Florence J. [illegible], Executive Director

NAME AND ADDRESS OF APPLICANT INSTITUTION
Small Business Administration
Jhon Research Systems
10101 Quimby Street, Silver Spring, MD 20901

SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). [illegible] In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The work will involve an intensive review of the techniques available for the bioconversions of waste materials to usable products of energy. These techniques shall include, but not be restricted to, composting, anaerobic digestion, hydrolysis to sugars and fermentation to ethanol, methanol production, and wet oxidation. These bioconversion techniques shall be critically analyzed by discussing past, present or proposed uses and systems in use or under development, economic and cultural factors that influence system feasibility and implementation, factors which favor the use of one process over another and other factors which may be necessary to achieve the object of this research.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) N/A	SIGNATURE OF PRINCIPAL INVESTIGATOR Prepared by [illegible] Jaafar	DATE September 11, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. 2 10-A	PROJECT OFFICER Clarence A. Clemons RESPONSIBLE ORGANIZATION [illegible], Cincinnati, Ohio [illegible]

FUNDS OBLIGATED $7,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 0	STARTING DATE 6/30/75	ESTIMATED COMPLETION DATE [illegible]/75

EPA Form 5760-1 (7-72) REPLACES EPA FORM 166 AND SSIE 18A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. [illegible]

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. [illegible]

77ACM

TITLE OF PROJECT

Enzymatic Hydrolysis of Waste Cellulose

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT

Leo Spano, Chief Pollution Abatement Division
John M. Nystrom, Acting Head Engineering Technology Group

NAME AND ADDRESS OF APPLICANT INSTITUTION

Department of the Army
U. S. Natick Laboratories
Natick, Mass. 01760

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Make statements brief. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

OBJECTIVE: The research project will generate technical data needed to facilitate the production of glucose from waste cellulose.

APPROACH: Natick will specifically conduct studies on:

1. Enzyme production.
2. Substrate conditioning.
3. Saccharification.
4. Fermentation process development.
5. Saccharification reactions.
6. Process control system and economic analysis.

PROGRESS: Results from ongoing work conducted by Natick indicated that milled newspaper digested in the presence of Trichoderma cellulase yield glucose concentrations of 2-10%. Work to upgrade glucose yields is ongoing.

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

FOR OFFICE USE ONLY

7,10-C

Charles J. Rogers, Senior Research Chemist
Solid & Hazardous Waste Research Division
NERC-Cincinnati / EPA

100K	75		June 17, 1975	June 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)
SSIE
EPA
77ADG

TITLE OF PROJECT Control Technology Development ,or Abating Air Emissions from Glass Melting Furnaces

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Interim - final expected Mar. 76

NAME AND ADDRESS OF APPLICANT INSTITUTION

SUMMARY OF PROPOSED WORK — (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Glass melting furnaces are considered a potential source of fine particulate, sulfur oxides, nitrogen oxides, and other gases which are generally considered undesirable atmospheric emissions. In 1971, the glass industry ranked ninth in total fuels purchased by manufacturing industries. Two-thirds of the energy utilized by the glass industry was consumed by the high temperature melting furnaces in which raw materials are converted into molten glass. With most high temperature operations, the thermal efficiency is low, usually less than 35 percent. The product of this work will be the development of technology which reduces air emissions and improve the energy utilization of the glass melting furnace.

The purpose of this effort is to develop control technology for the abatement of air emissions from glass melting furnaces. A secondary benefit will be to improve the thermal efficiency of the furnaces and hence to conserve energy. The ultimate goal of this program is to demonstrate the technical and economic benefits of this technology on a commercial glass melting furnace within the industry.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Public, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) ☐ AGENCY STAFF (Intramural) ☒ CONTRACTED CONTRACT ☐ RESEARCH GRANT	TASK NO. 1	PROJECT OFFICER E. J. Wooldridge RESPONSIBLE ORGANIZATION IERL-RTP / EPA

FUNDS OBLIGATED $235 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE Feb. 76(Est.)	ESTIMATED COMPLETION DATE 5/76

EPA Form 2540-1 (7-73) REPLACES EPA FORM 366 AND SSIE 6A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0001

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

PROJECT NO. (Do not use this space)
SSIE
EPA 77-AIXG

TITLE OF PROJECT
Pollution Control & Heat Recovery from Primary & Secondary Nonferrous Smelters

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

William Coltharp, Senior Engineer

NAME AND ADDRESS OF APPLICANT INSTITUTION

Radian Corporation, P.O. Box 9948, Austin, Texas 78766

SUMMARY OF PROPOSED WORK -- (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objective: Investigate energy recovery applied to nonferrous smelters while simultaneously easing the control of air pollutants.

Approach: Recovery of heat contained in smelter flue gases is an approach potentially capable of conserving considerable quantities of fossil fuel (chiefly natural gas) in pyrometallurgical processes used for recovery of non-ferrous metals such as copper, zinc, and lead. Although such recovery of waste heat has been practiced on the limited scales in the U.S. or elsewhere (chiefly for steam generation), it is conceivable that by the application of available heat exchange devices (pebble bed or other type suitable heat exchangers, large quantities of additional waste energy can be claimed and made available for preheating air streams that are being supplied to various process units of existing smelters. Present practice of quenching hot flue gases by dilution with ambient air greatly increases a total gas volume discharged by a smelter. The recovery of waste heat and its utilization for electricity generation and for preheating process air therefore, would considerably reduce a total waste gas flow from the source. Since smelter effluent gas is always subject to purification before its discharge into the atmosphere (removal of particulate matter, sulfur oxides or other impurities), the possibility of reducing its total volume through heat exchange implies also technical and economical advantages that could be gained in addition to conservation of energy.

The proposed effort is to evaluate potential heat recovery systems and to develop preliminary designs for full scale application of the most potentially promising systems.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
		Sept. 17, 1975

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
☐ STAFF (Intramural)	2	Margaret Stasikowski
☒ NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION
☐ RESEARCH GRANT		IERL-Cincinnati / EPA

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY REQUIRED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$100 K	75	UNKNOWN	July 28, 1975	April 1976

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SIE 166 WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)

SSIE

EPA

17 NEW

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT

Fuel Cell Studies and Development (ERDA)

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT:

Dr. L. R. Lawrence, Jr.
ERDA/CONRT
Washington, D.C. 20545
202/376-4739

NAME AND ADDRESS OF APPLICANT INSTITUTION

Energy Research and Development Administration

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. [illegible]

Objectives: Demonstrate small scale performance of state-of-the-art phosphoric acid fuel cells. Study the market, applications, and benefits of fuel cell systems in industry, with waste hydrogen, and as peacetime military ground power.

Approach: A contract has been let to test and demonstrate, in the public domain, a number of small scale phosphoric acid fuel cells. A second contract is being let through the Air force to examine the application of fuel cell systems to Air Force ground power. A third contract will examine the present use of waste hydrogen, it's availability for fuel cell system, and possible hardware design for this application. A fourth contract will broadly examine the industrial market, application, and cost-benefit for small (40KW) phosphoric acid systems.

Current Plans and/or Program: The referenced contracts are presently in the process of being let.

[illegible]	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
		Feb. 23, 1976

FOR OFFICE USE ONLY

[illegible]	TASK NO.	PROJECT OFFICER Dr. L. R. Lawrence, Jr. 202/376-4739 RESPONSIBLE ORGANIZATION Energy Research & Development Administration
2	1 A 2	

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY PROJECTED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$2M	1976	0	01/01/76	10/01/76

EPA Form 5700-1 (7-73) REPLACES PHS FORM [illegible] WHICH MAY NOT BE USED.

ADVANCED SYSTEMS

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0001

PROJECT NO. (Do not use this space)
SSIE
EPA
77ADI

TITLE OF PROJECT: Survey of Environmental Regulations & the Assessment of Pollution Potential & Control Technology Applications for Geothermal Resource Development

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

CONTRACTOR NOT YET SELECTED

NAME AND ADDRESS OF APPLICANT INSTITUTION

N/A

SUMMARY OF PROPOSED WORK – (1) Objectives; (2) Approach; (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project will provide a comprehensive description of legal and technological requirements for pollution control in the emerging geothermal resource industry. It requires a survey of existing applicable regulations for each state having identified geothermal potential. All phases of development and all media regulations are to be included to establish overall pollution control requirements. Geothermal reservoirs will be identified and described in terms of fluid characterization. Current and developmental processes for geothermal exploration, development, and utilization will be reviewed, with emphasis given to identification of waste discharges or other environmental effects effects which may require control. Options for pollution control will be assessed and documented, including engineering and economic feasibility of applying specific processes to achieve acceptable control of wastes or other adverse environmental effects

IDENTIFY PROFESSIONAL FIELD INVOLVED (Medical, Biological, etc.)	SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) XXX NEGOTIATED CONTRACT OFFERED GRANT	TASK NO. 01	PROJECT OFFICER Alden G. Christiansen RESPONSIBLE ORGANIZATION IERL/Cin/ EPA

FUNDS ALLOCATED $122K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE Aug. 75	ESTIMATED COMPLETION DATE Aug. 76

Preceding page blank

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Form Approved
OMB No. 158-R0008

PROJECT NO. (Do not use this space)
SSIE
EPA 77 ADT

TITLE OF PROJECT: Geothermal Systems/Environmental Assessment of Extraction, Conversion, and Waste Disposal

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Donald B. Gilmore - Principal Investigator, Monitoring Systems Design and Analysis Staff

(702) 736-2969

NAME AND ADDRESS OF APPLICANT INSTITUTION

U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring & Support Laboratory, P.O.Box 15027, Las Vegas, Nevada, 89114

SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less). Omit confidential data. In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

Objective: A guideline document for the multi-media monitoring strategy around any geothermal resource development.

Approach: Development and validation of a monitoring strategy for monitoring the effects of geothermal effluents on plants, animals and groundwater.

Fifty percent of this work will be performed by contract (task 01) for a state-of-the-art and background data study covering groundwater pollution of the East Mesa area of the Imperial Valley, design and implementation of a monitoring strategy, and the collection and analysis of data.

The balance of the work will be performed in-house (task 02 thru 05) and will include a plant and animal uptake study in the Salton Sea area as well as element and chemical compound identification of geothermal effluents.

There will be developed a set of referenced sampling methods.

Current Plans:

Collection of baseline data and identification of pollutants and development of monitoring strategies. The areas to be studied are the Salton Sea for plant and small animal uptake and the East Mesa area for groundwater pollution and subsidence. The monitoring strategies will be implemented and adjusted as dictated by the data retrieved.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.): NA

SIGNATURE OF PRINCIPAL INVESTIGATOR: Donald B. Gilmore

DATE: 8/15/75

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)
X AGENCY STAFF (Intramural)
X NEGOTIATED CONTRACT
RESEARCH GRANT

TASK NO.: 01 thru 05

PROJECT OFFICER: George B. Morgan - (702) 736-2969 x243

RESPONSIBLE ORGANIZATION: EPA Environmental Monitoring & Support Laboratory/MSRD Division

FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE	ESTIMATED COMPLETION DATE
$250K	75	4	10/75	10/80

EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.